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Communicable Disease and Pasteurized Milk

Pasteurized Milk Remains Safe Only With Proper Handling

By EDWARD S. GODFREY, JR., M.D., DIRECTOR, DIVISION OF COMMUNICABLE DISEASES, N. Y. STATE DEPARTMENT OF HEALTH, ALBANY, N. Y.

ADVOCATES of the pasteurization of public milk supplies have been aware that theoretically pasteurized milk may transmit infection unless the process and subsequent handling are under proper supervision. To what extent it has actually done so appears never to have been investigated. Originally proposed as a means of improving milk used for infant feeding, pasteurization was later adopted commercially for the purpose of improving the keeping qualities of market milk. This really amounted to sophistication when it was applied, as it usually was, to old or dirty milk. The practice was thereby brought into disrepute and its general application to municipal milk supplies was opposed not only by the laity but by many physicians and public health authorities.

This opposition still lingers with the laity and with a certain percentage of physicians, but health authorities are now almost unanimously in favor of pasteurization as the only practical means of avoiding milk-borne infections. They have been led to this conclusion by a realization of the high cost of keeping herds free from tuberculin reactors; a realization of the rôle of the carrier in the spread of acute infections—especially typhoid fever; the difficulties of early diagnosis both in typical and atypical cases of communicable diseases that may occur on dairy farms; and by the favorable experience of communities

which have adopted pasteurization. An improved rather than the relaxed dairy inspection that was expected, a legal definition of the term "pasteurization," and a closer supervision of the process by the constituted authorities, have combined to reduce opposition and to increase the public demand.

Safe in Safe Hands

Milk may be infected at the farm, the dairy, during delivery, or in the household. Pasteurization *per se* destroys only that infection introduced at the farm or in the process of handling at the dairy before being heated. If subsequently infected, transmission of infection to consumers is quite as certain as with raw milk. However, in most milk-borne outbreaks, the source of infection where this has been definitely ascertained, has been found at the producing farm. In 44 of the 64 instances of milk-borne typhoid cited by Swithinbank and Newman¹, sufficient details are given to determine quite positively the source of infection. In 75 per cent the source was at the farm, in 20 per cent at the dealers, and 5 per cent by drivers. The two instances of presumable infection by drivers or deliverymen are of interest in that the outbreaks were quite large as judged by the standards of today—30 and 31 cases, respectively—and one at least was explosive in character. Presumably the milk was "dipped" since one of the epidem-

ics occurred in 1877 and the other ten years later.²

A similar classification of the outbreaks cited by Trask³ shows that in 86 per cent the infection took place at the farm, while the Busey and Kober⁴ list shows 91 per cent. It should be understood that these percentages are based only on the outbreaks which are described with sufficient definiteness to assign the source either to farm infection or to subsequent infection. Of the 492 outbreaks described by these authors one hundred eighty-six could not be assigned to either group with any certainty.

A tabulation of the outbreaks cited by these authors is presented in Table 1.

As the outbreaks cited by the above mentioned authors occurred for the most part before modern dairy machinery came into common use, it is not surprising to find that our experience in New York state in recent years has been far different. Thirty-seven outbreaks in the state, exclusive of New York City, have been traced to milk since January 1, 1917. In

1. Swithinbank and Newman: Bacteriology of milk, pp. 316 et seq.

2. Parker: City milk supply, p. 324, states that the bottling of milk commercially began in New York City in 1878. Only two firms followed this practice prior to 1886, when a third company took it up. In 1896 only 10 per cent of the Philadelphia milk supply was delivered in bottles, and bottle delivery was not started in Chicago until 1895.

3. Trask, J. W.: Bull. Hyg. Lab. No. 56, pp. 51 et seq.

4. Trask, J. W.: Bull. Hyg. Lab. No. 56, pp. 118 et seq.

TABLE I.—SOURCES OF INFECTION IN MILK-BORNE OUTBREAKS.
(Trask, Busey & Kober)

Trask	ALL OUTBREAKS	Per Cent	Typhoid Fever	Scarlet Fever	Diph- theria
Total outbreaks	253	...	179	51	23
Indefinite	132	...	65	11	6
Definite	121	100	114	40	17
Farm infection	147	86	97	33	17
Subsequent infection	24	14	17	7	..
Busey & Kober					
Total outbreaks	239	...	138	73	28
Indefinite	104	...	40	45	19
Definite	135	100	98	28	9
Farm infection	123	91	92	23	8
Subsequent infection	12	9	6	5	1

thirty-five instances the source of infection was located on the farm itself and although the source was not discovered in the two other outbreaks, the chances were equally as good that it was on the farm as subsequently.

As will be shown later, not less than 22 per cent and probably about 30 per cent of the population of the United States in 1920 was supplied with milk officially recognized as pasteurized. While pasteurization under official supervision is of recent growth, yet for many years preceding the enactment of ordinances and rules defining and regulating the process, considerable amounts of milk were pasteurized for commercial purposes. It would be expected that with this large amount of pasteurized milk being sold, some subject to official oversight and some not, that outbreaks of communicable disease transmitted by such supplies have occurred.

In order to ascertain how often these have happened, and in order to discover if possible the faults that have been responsible, an effort has been made to collect all outbreaks of communicable diseases attributable to pasteurized milk. An inquiry was addressed to the executive officer of every state health department, to the health officers of twelve of the largest cities in the United States, and to several of the most prominent teachers in public health schools. This inquiry was intended to cover all outbreaks of communicable diseases in which milk that was pasteurized, or even purported to be pasteurized, was found to be or was suspected of being the agent of transmission. The questionnaire covered not only outbreaks occurring in the experience of the person to whom the inquiry was sent, but any that might have occurred in his state or municipality or which he recalled having encountered in the literature. As a result sixteen outbreaks have been collected, the summaries of which are given in Table II.

It is not pretended that this list is complete for the inquiry was confined to those most apt to know of instances of this sort either through personal experience, through their official po-

sition, or through their known interest in the improvement of milk supplies. All such outbreaks must have occurred in recent years and therefore within the recollection of men probably still active in public health work. It is hoped that any omissions from the list will be supplied and that future outbreaks will be reported as such, since it is important that we do not allow the term "pasteurization" to become a shibboleth. I believe that too many health officers are prone to assume that because milk passes through a pasteurization plant it is *ipso facto* safe. Many of the replies received to our questionnaire stated that an outbreak due to pasteurized milk was impossible, showing that they either misunderstood the questions or that they failed to appreciate the necessity of careful supervision.

To summarize these outbreaks, it will be noted that three—Outbreaks Nos. 1, 2 and 3—were due to milk pasteurized by the so-called "flash" or continuous process, only one of which (No. 2) was subjected to official supervision. This was the Chicago septic sore throat outbreak of 1911. The Chicago ordinance of 1908 gave, I believe, the first legal definition of pasteurization. It permitted any method which resulted in a destruction of 99 per cent of the total bacteria and all the pathogenic bacteria contained in the raw milk. The pasteurizer in this case was equipped with a recording thermometer and, as shown in Capps and Miller's article, there was a marked correlation in the time between the failures of the temperature to reach the necessary thermal death point for this machine and more outbreaks (Nos. 1 and 3) there was apparently no attempt to meet the peaks of the onsets of the cases.

In the Little Rock and Balti-

5. Capps, Jos. A., and Miller, Jos. L.: The Chicago Epidemic of Septic Sore Throat and Its Relation to the Milk Supply. *Jour. A. M. A.* June 15, 1912, lviii, 1848.
Heinemann, P. G.: The Epidemic of Sore Throat in Chicago—A Preliminary Report. *Jour. A. M. A.* August 31, 1912, lxx, 716.

Capps, J. A.: The Role of Milk in the Causation of the Chicago Epidemic of Sore Throat. *Jour. A. M. A.* Nov. 9, 1912, lxx, 1715.
6. Frost, W. H.: Septic Sore Throat—A Milk-Borne Outbreak in Baltimore, Md. *Public Health Reports*, Nov. 22, 1912, xxvii, 1889.

any legal requirements. The former was an extensive typhoid outbreak of about three hundred and thirty cases, the summarized account of which has been furnished by Dr. W. H. Frost,⁶ Johns Hopkins University, Baltimore, Md. The milk was sold partly in bottles, partly in bulk to an institution, and partly as ice cream. There was no thermographic record of the pasteurizer and, although the source was not definitely located, the milk

TABLE II.—A SUMMARIZED STATEMENT OF SIXTEEN OUTBREAKS OF COMMUNICABLE DISEASES ATTRIBUTABLE TO PASTEURIZED MILK*.

- (1) Little Rock, Ark., 1911. Flash pasteurization. Typhoid, approximately 330 cases. Source of infection not determined.
- (2) Chicago, Ill., 1911-1912. Flash pasteurization. Septic sore throat, approximately two thousand cases. Source of infection: probably cases on dairy farm. Also, one case among workers at pasteurizing plant.
- (3) Baltimore, Md., 1912. Flash pasteurization. Septic sore throat, between four and five thousand cases. Source of infection unknown; probably infection was introduced before pasteurization.
- (4) Rockford, Ill., 1913. Holding pasteurization. Typhoid, from 16 to 31 cases. Source of infection: exchange of bottles with another dairy; evidence as presented not conclusive.
- (5) New York City-Brooklyn, 1915. Holding pasteurization. Typhoid, 112 cases. Source of infection, mechanical bottle filler infected by polluted water used in washing.
- (6) New York City-Bronx, 1916. Typhoid fever, 55 cases. Source of infection: Country pasteurizing plant in village where typhoid record was "bad," 19 cases being recorded in six or seven years in population of 250.
- (7) Charlottesville, Va., July, 1916. Holding in bottle pasteurization. Diphtheria, 12 primary and 3 secondary cases. Sources of infection: bottles capped by hand; wife of capper gave positive throat cultures; capper negative; adults, one child only.
- (8) New York City-State Island, 1917. Holding pasteurization. Typhoid fever, 65 cases. Source of infection not definitely located; a driver was found who had two cases in family.
- (9) Somerville and Medford, Mass., 1917. Holding pasteurization. Septic sore throat, approximately 150 cases. Source of infection: thermograph out of order for a time prior to outbreak; three employees of plant complained of sore throat.
- (10) Hartford, Conn., 1920. Holding pasteurization. Typhoid, four cases. Source of infection: all cases on route of one driver who was found to be a typhoid carrier.
- (11) Providence, R. I., 1920. Holding pasteurization. Scarlet fever, 29 cases. Source of infection: all cases occurred among students eating in a certain refectory; no cases among other customers of same dairy; Chapin believes possibly can of raw milk was substituted.
- (12) Canby, Minn., 1921. Pasteurized by being brought to temperature of 160 degrees in "starter can" and immediately cooled. Typhoid fever, six cases. Source of infection: unrecognized case in family of proprietor of milk plant; equipment and process did not conform to state requirements, and products not sold as pasteurized.
- (13) Minneapolis, Minn., 1921. Holding pasteurization. Paratyphoid, approximately one hundred cases. Milk was properly pasteurized; sold in bulk to cafeteria at University.
- (14) Pennsylvania, August to October, 1916. Holding pasteurization. Typhoid, approximately fifteen hundred cases. Ice cream outbreak centering in Harrisburg; source of infection not discovered.
- (15) Chattanooga, Tenn., July and August, 1917. Flash pasteurization. Typhoid, approximately seventy-five cases. Source of infection not determined.
- (16) Hartford, Conn., 1921. Holding pasteurization. Typhoid and paratyphoid, 83 cases. Source of infection not determined; outbreaks or unusual prevalence of typhoid or paratyphoid in communities in which this ice cream was sold.

Note—Reference in discussion is by paragraph number.

was probably infected before pasteurization. The Baltimore outbreak was the well known outbreak of septic sore throat. Since this has been adequately described in the literature, it suffices to say that infection almost certainly took place before the milk reached the pasteurizing plant and that no adequate thermographic records were available for the period during which infection took place.

One other outbreak which possibly belongs in this category was that in Canby, Minn. (No. 12). This was a typhoid fever outbreak of six cases.⁷ The source of infection was thought to have been a child suspected of having had unrecognized typhoid in the family of one of the proprietors. While the "flash" method of pasteurization, as that is ordinarily understood, was not used, neither did the process conform to the state requirements. The milk was run into a fifty gallon "starter can" and the temperature then raised to from 160 to 180 degrees F. A common dairy thermometer was used for determining the temperature. After attaining the temperature stated above the milk was immediately cooled, transferred to cans, and stored in a refrigerator. It was dipped from these cans into containers furnished by the consumers as it was called for at the plant. The milk was not advertised or labeled as "pasteurized," the sole object of the process being to improve the keeping qualities of the milk.

Fault One of Method

The "flash" method soon fell into such disrepute among health officials that milk subjected to this process is no longer officially recognized as pasteurized. It is very probable that there have been other outbreaks due to this type of "pasteurized" milk which either have not been reported, or if reported, this sort of "pasteurization" was considered immaterial and unworthy of mention. It should be borne in mind too, that formerly milk-borne typhoid was very apt to be masked by the large numbers of water-borne cases, and that the widespread use of good epidemiological methods is a matter of the last decade at most and is not yet universal. Hence it is not unlikely that a number of small milk borne outbreaks have been overlooked and among these there may have been some on pasteurized milk routes.

Of the remaining twelve outbreaks, there was one each of scarlet fever,

septic sore throat and diphtheria, and nine of typhoid fever. The scarlet fever outbreak—No. 11—occurred in a refectory at Brown University and Doctor Chapin⁸ after a careful investigation was unable to discover any way by which the milk could have become infected after pasteurization, and the fact that no cases occurred among customers of this company outside the refectory precluded faulty pasteurization. His conclusion was that someone had surreptitiously introduced a can of raw milk which had chanced to be infected.

The septic sore throat outbreak in Massachusetts (No. 9) may have been due to defective pasteurization or to infection introduced subsequently.⁹ The thermographic records of the pasteurizer for several days preceding the outbreak "could not be found," and on the other hand three of the employees in the plant were suffering from sore throat while at work.

The diphtheria outbreak in Charlottesville, Va., (No. 7) is interesting as it illustrates the danger of human handling subsequent to pasteurization. I am indebted to Dr. Enion G. Williams, secretary of the Virginia State Board of Health, for mentioning this outbreak and for obtaining the manuscript of the paper by Dr. W. E. Bray describing it. This milk was pasteurized in the bottle by the holding process but was capped by hand. The capper was observed to wet his finger on his tongue from time to time in order to facilitate his work. Although a day or two after the outbreak commenced his throat cultures were negative, his wife's cultures were positive. It is not difficult to believe, in the absence of evidence as to other possible avenues of infection, that he had been a transient carrier and had infected the milk by his fingers or by coughing into the open bottles.

Reverse Age Incidence

This outbreak is also of interest in that only one child was attacked. Although the outbreak was mostly among students of the University of Virginia, a number of children drank the milk without contracting the disease. This is another illustration of the peculiar tendency of milk outbreaks to reverse the usual age inci-

dence of the disease. This peculiarity has not been specially mentioned by American authors except for typhoid fever. We have had three illustrations of it as to diphtheria and scarlet fever in New York state this year. Ordinarily about from 15 to 20 per cent of our diphtheria and scarlet fever cases occur among persons over nineteen years of age. In one of these milk-borne scarlet fever outbreaks the percentage of cases over twenty years was twenty-eight, in the other thirty-two, while in the diphtheria outbreak it was sixty-nine, with no peculiarity of age distribution among the exposures to account for it. We ordinarily consider the adult relatively immune to these diseases, presumably either because of a prior attack or from repeated exposure to small amounts of infection, and yet they readily succumb to infection transmitted by milk. This susceptibility of adults to scarlet fever and diphtheria is the more remarkable when we consider that in milk-borne typhoid we ordinarily find a disproportionate number of cases among children and this is usually ascribed to their consuming more milk. If the latter be the true explanation in typhoid, it is peculiar, to say the least, that it does not hold true, in scarlet fever and diphtheria.¹⁰

Of the nine typhoid outbreaks, one occurred in Rockford, Ill., one in Hartford, Conn.; one in the University of Minnesota—a paratyphoid outbreak, to be exact; three were in New York City; and three were ice cream outbreaks occurring in Pennsylvania, Chattanooga, Tenn., and Hartford, Conn.

The Rockford, Illinois, outbreak—No. 4—formed part of a general outbreak of 165 cases which occurred in that city from July to October, inclusive, in 1913.¹¹ The plant was a "thoroughly equipped, modern, city milk plant, and does, by far, the largest milk business in Rockford." The milk was pasteurized by the holding process and apparatus was provided for sterilizing the cans and bottles. No evidence is adduced that the pasteurization was not properly carried out or that cans and bottles were not properly sterilized, yet the authors surmise that infection occurred through the use of bottles from another dairy which was having a number of cases on its route. As a

8. Personal communication from C. V. Chapin, M.D., superintendent of health, Providence, R. I.

9. Annual report of Massachusetts State Department of Health, 1917.

Personal communications from Drs. B. W. Carey, director, Division of Communicable Diseases, Massachusetts State Department of Health, and Stanley H. Osborn, deputy commissioner of health, Connecticut State Board of Health, formerly epidemiologist, Massachusetts State Department of Health.

10. Bray, W. E., Virginia Medical Journal. In this connection see the account by Graham, Mahelm, and Golz, E. H.: Milk-Borne Diphtheria, Jour. A. M. A., October 14, 1922, lxxix, 1300.

11. Hansen, Paul, and Parker, H. N.: Typhoid in Rockford, Ill., Jour. Infect. Dis., January, 1915, xvi, 1.

7. Personal communication from A. J. Chesley, M.D., secretary, Minnesota State Board of Health.

matter of fact, the evidence that this particular milk conveyed infection is, as presented, far from conclusive. Suspicion was aroused because the number of cases on this route increased from three in August to nine in September and fifteen in October. However, this plant supplied 43 per cent of the total milk of the city and in no month did it have more than 36 per cent of the total cases in the city for that month. The increase in the number of October cases can probably be accounted for by an increased business at that time in that part of the city which was principally affected by typhoid. A milk plant located in this affected section had been shut down on September 4 and it is a fair assumption that the suspected plant got a share of its business."

The Hartford outbreak (No. 10) consisted of but four cases, all on the route of one milk driver found to be a carrier¹². This is an example of careful epidemiological work and it is to the credit of the health department that an outbreak of this size should be recognized promptly and traced to its source. An outbreak of this character is in conformity with what might be expected from the handling of milk bottles in the course of delivery by a case or carrier.

New York City Outbreaks

In the account¹³ of one of the New York City outbreaks (No. 8) it is mentioned that a driver was found in whose family two cases of typhoid existed. Apparently considerable significance was attached to this, since the account related that the outbreak ceased soon after he discontinued work. As this outbreak was explosive in character and involved sixty-five cases, the suggestion of cause and effect is difficult to believe. The epidemiological account does not state as a conclusion that the driver was the cause of the outbreak, but the uncritical reader is very apt to receive this impression. As a matter of fact, how the milk became infected in this case was never determined. That it was subsequent to pasteurization seems amply proved by the fact that the process and method of handling at the plant were satisfactory, and milk from this plant going elsewhere in New York transmitted no typhoid.

Another of the New York City out-

breaks (No. 5) was attributed to the water used in washing out the bottling machine after it had been sterilized by steam¹⁴. The milk was pasteurized in a plant from which it was delivered to several dealers who did their own bottling. The milk of one bottling plant only had an excessive typhoid incidence. No cases or carriers could be discovered among the personnel, but upon analysis the water supply showed pollution.

The remaining New York City outbreak (No. 6) was attributed to infection occurring in the country village where the milk was pasteurized and whence it was shipped to New York¹⁵. Just what defect permitted infection to survive pasteurization or gain entrance subsequently does not appear to have been determined. The report states that the typhoid record of the village was "bad," implying presumably that there was an unknown carrier employed in the plant who might have infected the milk after pasteurization.

Faulty Pasteurization

The paratyphoid outbreak at the University of Minnesota (No. 13) was quite certainly due to infection subsequent to pasteurization¹, although the precise mode of infection if known has not been stated. The milk was delivered in bulk to one of the cafeterias at the University and presumably was infected by some employee.

The three ice cream outbreaks occurred in Pennsylvania, Chattanooga, Tenn., and Connecticut. The Pennsylvania ice cream outbreak (No. 14) is of interest as being the most extensive milk-borne outbreak of typhoid fever on record, the term "milk" being used to include "milk products." This outbreak, involving nearly fifteen hundred cases, extended to twenty-one counties in Pennsylvania and should probably include a number of cases in other states to which the product from the infecting factory was shipped¹⁶. It seems remarkable that so recently as six years ago an outbreak of typhoid could reach such magnitude and either have remained so long unrecognized for what it was or have been dealt with in such an uncertain manner.

The method of pasteurization was to raise the temperature of the cream to 160 degrees Fahrenheit, after

which it was cooled to 140 degrees and there held for twenty to thirty minutes. It was subsequently cooled to 45 degrees in an open vat and afterwards passed to a homogenizer. There were no recording thermometers and it is related that one thermometer was not in good working order so that it was doubted if the cream reached or was held at the temperature claimed. Examinations of the efficiency of the pasteurizer taken three to ten weeks after the plant was under suspicion, showed that colon bacilli were passing through in large numbers. The pasteurization of this cream was not subject to official supervision prior to the outbreak. The source of infection was never determined.

Dangers in Ice Cream

This outbreak is of especial interest since it illustrates the potential magnitude of an ice cream outbreak. The consumption of ice cream has grown enormously and the supervision of its production has not kept pace with this growth. While most large factories pasteurize their cream for business reasons, this pasteurization often is not subject to the requirements pertaining to the pasteurization of market milk. The modern ice cream plant turns out thousands of gallons of its product every week during the season when typhoid infection is most apt to occur and it is not unreasonable to require that not only should the process of pasteurization be subject to supervision, but that every step in its manufacture should be under official oversight.

The Chattanooga outbreak (No. 15) comprised about seventy-five cases. "The mixture for making the ice cream . . . was run through a 'flash' pasteurizing machine, but it was positively established that this machine on some occasions did not pasteurize¹⁷." The source of infection was not located.

The Connecticut outbreak (No. 16) was apparently due to a double infection since it consisted of 45 typhoid and 32 paratyphoid cases in Connecticut and 6 typhoid cases in a small hamlet in New York¹⁸. The ice cream was distributed to forty communities outside of Hartford, in eleven of which one or more typhoid cases occurred about the same time as the main outbreak in Hartford. The milk and cream used were condensed, homogenized, or pasteurized. The temperatures at which the processes of

12. Annual Report (1920) Connecticut State Board of Health.

13. A Milk-Borne Outbreak of Typhoid Fever on Staten Island. Weekly Bulletin, N. Y. C. Department of Health, September 22, 1917, vi, 297. Annual Report, N. Y. C. Department of Health, 1917, p. 46.

14. Weekly Bulletin, N. Y. C. Dept. of Health, Dec. 1, 1913, IV, 400. Annual Report, N. Y. C. Dept. of Health, 1913, p. 50.

15. Nicholas, G. L.: Milk-Borne Typhoid Fever. Monthly Bulletin, N. Y. C. Department of Health, January, 1917, vii, 1.

16. Annual Report, Pennsylvania State Department of Health, 1916, pp. 241 et seq.

17. Lumsden, L. L.: Ice Cream as a Factor in the Spread of Typhoid. Jour. A. P. H. A., December, 1917, vii, 1005.

condensation and homogenizing were carried on are not stated but all milk and cream is said to have been pasteurized before reaching the jobbers who supplied the ice cream company. The temperature records of the pasteurizing plant whence came the uncondensed cream were available and showed that pasteurization had been properly performed. In the process of manufacture the cream (condensed, homogenized, or pasteurized) was raised to a temperature of 150 degrees Fahrenheit in a large vat. The addition of sugar was commenced at this point and completed in from twenty to twenty-five minutes, at which time the temperature was ordinarily about 125 degrees F. Other materials were then added and the product piped to the freezers. All likely sources of infection appear to have been investigated with negative results. It is hardly profitable to speculate on the sources of infection since but few of the possibilities can be definitely excluded on the evidence it was possible to secure. It is believed, however, that the pasteurized cream can be definitely excluded since the firm which supplied this cream also sold milk at retail and the cases which developed on its routes also ate the ice cream. Both this outbreak and the one in Chattanooga were explosive in character, a high percentage of the cases developing within a single seven day period in each instance.

Pasteurization Increases

It has already been mentioned that probably about 30 per cent of the population of the United States was supplied with pasteurized milk in 1920. This figure was derived from the report of the Committee on Municipal Health Department Practice and Milk Inspector Letter No. 57, United States Department of Agriculture. In the former report¹⁸ is given the percentage of pasteurized milk sold in each of seventy cities of over 100,000 population. The weighted average of these figures shows that 83 per cent of their total milk supply was pasteurized. The combined population of the cities of 100,000 was in 1920, 27,429,326, or 26 per cent of the total population of the continental United States. Therefore, approximately 22 per cent of our population was quite certainly served with pasteurized milk that year. A conservative calculation based on the milk inspector letter above referred to adds approximately

seven million living in cities of ten thousand to one hundred thousand population, whose milk supply is pasteurized. This is 6.6 per cent of the population of the United States, making a total of 28.6 per cent of the population who consume pasteurized milk. To this a small number should be added for those living in smaller communities, principally suburban, who obtain pasteurized milk, bringing the total to about 30 per cent.

While the increase in pasteurization has been rapid, yet it has not developed all at once and it is apparent therefore that this small number of outbreaks on pasteurized milk routes is not merely a matter of chance. Although we have no way of knowing how many milk-borne outbreaks have occurred during the period of eleven years covered by the series here reported, it has quite certainly run into the hundreds. If quantity alone were the determining factor we should probably have from ten to twenty times this number of outbreaks to report.

Perhaps the most convincing evidence of the benefits of pasteurization from the standpoint here considered, is to be found in the contrast between the experience of New York City and New York state, exclusive of the city, since January 1, 1917. Although in 1921 about 54 per cent of the milk supplied "up-state" by licensed dealers was pasteurized, it is probable that when milk consumed by owners of cows and that sold to neighbors is included, that the percentage of pasteurized milk would not exceed 35 per cent. In New York City 98 per cent of the milk is pasteurized. The population of New York City is 15 per cent larger than that of the rest of the state and much of its milk is shipped from considerable distances. During this period the city has had one outbreak—a typhoid outbreak five years ago (No. 8) while thirty-seven have occurred in the rest of the state. This is certainly a remarkable contrast even making allowance for the fact that outbreaks and their sources are more easily discovered and traced in smaller places than they are in large ones.

Apocryphal of the tracing of outbreaks, there is a word to say relative to the epidemiology of milk borne typhoid. There is a prevalent belief, handed down from the last generation, that all milk borne typhoid appears explosively. This was formerly thought to be true of water-borne typhoid. But just as improved methods of treating water from polluted sources have reduced the in-

cidence of water-borne typhoid, and yet by reason of minor or temporary defects have allowed occasional infection to occur, so will it probably be with milk borne typhoid as the extent of pasteurization increases. There will be a considerable reduction in the gross amount of typhoid fever—greater than the figures for definite milk-borne outbreaks seem to indicate¹⁹, but there will be residual cases whose source will only be located by careful epidemiological study.

Occasionally the pasteurizer will kill almost but not quite all of the pathogens in a primarily infected milk, or possibly it may attenuate their virulence though not killing them, or a bottle will occasionally be infected by a carrier in the plant or on the wagon, and the result will be a few scattered cases of typhoid occurring perhaps weeks or months apart. This kind of milk-borne typhoid is rarely discovered today but it is the kind that we must learn to discover if milk-borne typhoid is to be no more.

Summary and Conclusion

Sixteen instances have been collected of outbreaks of communicable disease attributed to infection by milk, or milk products, which had been—or purported to have been—pasteurized. In one instance the milk probably had nothing to do with transmitting infection. In four instances the milk was pasteurized by the "flash" system or some other method which failed to conform to the standards of the health authorities. In one instance, the thermographic records for several days preceding the outbreak could not be found, hence there is a doubt as to whether a proper temperature was reached and maintained for the proper length of time. In this instance there was also an opportunity for the milk to have become infected subsequent to pasteurization.

In seven instances in which pasteurization was properly carried out, the evidence as to subsequent infection is conclusive in all but two. This is demonstrated by the fact that milk from the same pasteurizing plant handled by other dealers or drivers or delivered elsewhere than in the sharply defined focus of the outbreak did not spread infection. In one of the two exceptions there was very strong

20. Vide E. R. Kelley, Milk-Borne Infection, Jour. A. M. A., December 30, 1916.

Kelley, E. R., and Osborne, S. H.: Further Evidence as to the Relative Importance of Milk Infection in the Transmission of Certain Communicable Diseases of Man, Jour. A. P. H., January, 1920, x, 66.

Ogan, M. L.: Typhoid Fever in New York City, Monthly Bulletin, N. Y. C. Department of Health, April, 1915, v, 87.

18. Mss. report furnished by S. H. Osborn, M.D., deputy commissioner of health, Connecticut State Board of Health.
19. Jour. A. P. H. A., July, 1922, xii, 588-589.

circumstantial evidence of infection by the employee who capped the bottles. In the other the source of infection was not located. Although it could be considered that infection *may* have passed through the pasteurizer, there is no evidence that it did.

Hence it is a fair conclusion that pasteurization as now commonly defined in health laws and regulations will destroy any infection implanted previous to the process. Since from 85 to 90 per cent of milk outbreaks have been due to infection at the farm, pasteurization will prevent from 85 to 90 per cent of milk-borne

infection. With modern dairy machinery which reduces human handling to a minimum and provides ample facilities for the sterilization of utensils, the number of infections occurring through milk will be infinitesimal. The remaining sources of danger are slight except in hotels, restaurants, boarding houses, and in shops where bulk milk is permitted to be dipped. The fact that it has been possible to collect these reports of outbreaks emphasizes the necessity of supervising the process of pasteurization and of properly protecting the product afterwards.

The potential danger from infected ice cream is illustrated by three outbreaks, especially the enormous typhoid outbreak cited. The manufacture and handling of this widely consumed product is deserving of closer supervision than that of any other food product except milk itself.

Milk-borne typhoid will probably tend to assume more and more an endemic type as pasteurization becomes more common. It will therefore demand more intensive investigation in order to determine the mode of transmission and locate the case or carrier responsible for the infection.

Eugenic and Dysgenic Classes

By H. H. NEWMAN, PH.D., PROFESSOR OF ZOOLOGY, UNIVERSITY OF CHICAGO, CHICAGO, ILL.

ONCE upon a time there was a typical kingdom, ruled over by a decidedly atypical king. This king, instead of looking upon his people as a property intended for purposes of exploitation, had the highest and best interests of the whole people at heart. Looking over his people he saw that some were plus quantities and other minus quantities, in so far as their individual values to the community at large was concerned. Having arrived at this conclusion, he decided that, since he was all powerful and could accomplish whatever he chose, he would do a little problem in human arithmetic by way of increasing the total value of the human elements in his kingdom. The thing to do was very simple—subtract the minus quantities and multiply the plus quantities. In a generation the results were amazing. No more feeble-minded, insane, weakling, or criminal folk were born within the kingdom. All of the babies were the offspring of selected parents with plus values. Human evolution had jumped forward by leaps and bounds. All were happy and contented. The few inferior types that were still surviving were kept in isolation or else were sterilized so that they were the last of their kind—mere human curiosities, relics of a primitive, barbarous age.

So goes my little fairy tale. What is wrong with it, may I ask you? Suppose in the United States today some very highly trained and very wise and judicious eugenicist was given full power to carry out a eugenic program. Would he be able to repeat the success of our fairy tale king? Let us examine his task before we attempt to decide.

First, he must be able to distinguish

between the plus quantities and the minus quantities. That in itself would be a difficult task. One would have to study pedigrees before one could pronounce upon the value of an individual. Granting that this could all be done if the eugenicist had adequate assistance, would he then be able to carry out his plans? He might, if he were a truly far-sighted individual and one able to see with a wide-ranging social perspective. He must judge between the plus and minus quantities with reference to their service as members of a highly complex social organization. Who are the eugenic classes, the plus types we have been speaking of? Who are the dysgenic classes, the minus types of our story?

I am sorry to say that almost everything that has been written about the so-called superior classes, about subsidizing the fit, about conserving the desirable germ-plasm, has for its basic assumption that the eugenic classes are the intellectual classes. It has been pointed out that the leading American men of science have far fewer children than they should, that graduates of the leading womens' colleges have on the average about half a child apiece, that the old New England stocks, which are, of course, admittedly superior, are gradually dying out, especially in their native haunts.

In a word, it would appear that the writers on eugenics have simply assumed that their own types are the eugenic types and are sad because these types are losing ground. They would advocate various measures for giving these stocks an artificial advantage in the struggle for existence, so that considerably larger numbers of such types might be produced than

could find a foothold under present conditions.

This effort is, we believe, ill conceived. We are a great agricultural and industrial community and we need a number of distinct types of humanity in pretty definite ratios in order to run smoothly. We need many agricultural types, many industrial or artisan types, many commercial or purely business types, a relatively few executive types, and some intellectual types. We have arrived at a working equilibrium with reference to the ratios of the types that the great business of the nation needs. My critics will answer that there is no such classification of human types as those that I have listed. My reply would be that, roughly speaking, I am right. Who knows better than the university professor how almost impossible it would be for him with his mental endowment to perform day after day the tasks of a shoe-cutter, tasks that require some manual skill but no intellectual activity. Such an occupation would much better be performed by a man of simple, uncomplex mentality, one who will not suffer agonies for the lack of mental excitement. The skilled mechanics and those who are manually the most effective are not the intellectual types, nor are they commonly the executive types. I maintain that there are several distinct categories of eugenic types and that they reproduce themselves just about as rapidly as is necessary to maintain a nice equilibrium of the various types in the complex community. The task of unbalancing this equilibrium would be a difficult and probably an undesirable one. It will be seen that I am somewhat pessimistic with regard to so-called positive

eugenics We would best let well enough alone on the side of the plus elements in our country, but there is ample room for action with reference to the minus quantities.

Obvious Things to Do

There is some positive knowledge as to what constitute the dysgenic classes. The patent feeble-minded, the types tainted with known forms

of hereditary insanity, the types belonging to pedigrees whose sum total of achievement falls on the debit side of the balance sheet; these types are obviously minus quantities in our communities. They contribute nothing of value to the sum total of human welfare. The cutting off of these stocks, of these streams of germ-plasm, would be comparatively easy. A vast improvement in condi-

tions of life would be felt in a generation. At present it need not be a matter of great concern for us to attempt to alter the equilibrium of the plus classes. It is too soon to try an experiment so difficult and fraught with so much economic danger. But the experiment of eliminating the obviously unfit, the patently dysgenic classes, is one that should be begun at once and on a large scale.

Elements of a Health Education Campaign

Formation of a National Health Education Commission Recommended

By R. E. LUHN, JR., EXECUTIVE SECRETARY, TUBERCULOSIS SOCIETY OF OKLAHOMA CITY, OKLAHOMA CITY, OKLA.

INASMUCH as a health education campaign successfully to enlighten all branches of society, comprising probably 90 per cent of the total, now ignorant to a remarkable degree of the diverse elements affecting bodily health, must react on high and low, rich and poor, young and old, it should not be a sporadic and haphazard undertaking but should cover the nation and be continuous. To conduct such a campaign in a way to insure the largest measure of success nationally would probably require a committee or commission to include experts on preventive medicine, public health, psychology, education, and practical applied advertising.

There is reason to believe that many of the health education campaigns now conducted by local tuberculosis societies, Red Cross chapters, and health departments are a waste of time, effort, and money. A common method is to placard the town with "don't-spit" or other posters which are to "educate" the public. All available car-card and bill-board space is used. Two minute speakers fill the theaters. Dodgers litter the streets. The public for a week or ten days is literally stuffed with health education, so called, with little of it digested. Two days after a campaign of this nature nothing much remains of it.

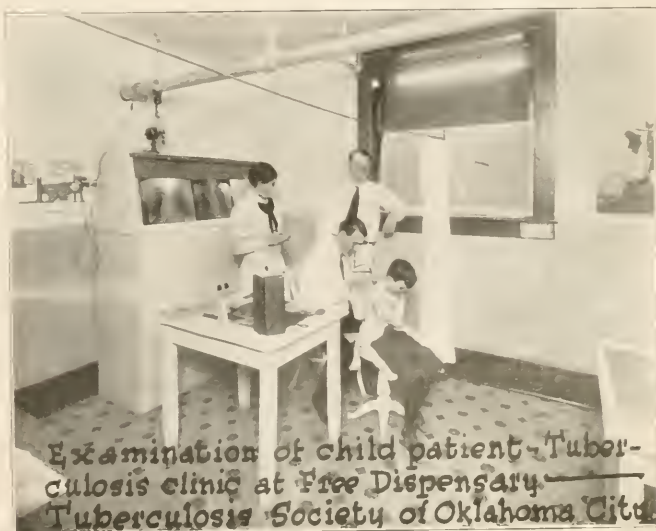
Fortunately, all organizations do not depend on this intensive "get it over quick" method. There is a steady, sane health education campaign being conducted along right lines in numbers of places, particularly in the larger cities, by public health nurses, public spirited physicians, and social workers, but this, even, is not broad enough, reaching only a small percentage of our urban population

and the rural population scarcely at all. There is little coordination of program in the different centers and but a fraction of the effort which should be exerted annually to enlighten the people concerning health matters is brought into play.

In any undertaking the object of which is to educate the adult population care must be taken not to underestimate the ability of our American public to grasp even technical information if presented in clear, understandable language, else the very object aimed at will be lost. Undoubtedly, one of the most effective ways to reach the American people is through the use of paid space in newspapers and periodicals. Dignified, attractive advertisements are read, and when

read are absorbed. Preparation of such advertisements, so far away as type display is concerned, should be in the hands of an advertising expert. The presentation to the eye should be as nearly perfect as human ingenuity may devise. The language should be strong, simple, effective. The information offered should be in itself comprehensive, but possibly through the use of a coupon, an offer should be made in each advertisement to furnish pamphlets giving more detailed information on the particular subject treated.

The newspapers of the day are besieged from all sides by health educators and others for space, a community with a definite sale value. The greater part of the material of-



ferred is not "news," however valuable in itself as educational material. No health society that has the money will hesitate to spend a given sum for leaflets, pamphlets, booklets galore. Why the hesitancy to lay out money in a way that would get certain, fixed results, paying for display space, asking only of publishers contributions for the support of the work on the same basis with others? This policy should result in health becoming more and more a news subject in a true sense, finally carrying such weight that paid space would be required to a less degree.

Facts presented to the public through paid space would require careful reviewing. Public health work is greatly hampered today because information disseminated in the past was either false to begin with or later disproved. It probably would be impossible and possibly not desirable to prevent local organizations from indulging in health education campaigns of their own, especially along publicity lines, but with a national committee to pass on the methods employed and the information disseminated, this desire for individual expression should become a source of strength to the movement.

Is the idea of creating a public health education commission a practical one, particularly from a financial standpoint? If all the money now expended in hodge-podge health education methods over the entire country could be concentrated we would undoubtedly have sufficient funds with which to finance such a commission: or the work might be undertaken under the existing National Health Council.

Health education involves the changing of habits, not of individuals but of the nation. Take for example the practice of promiscuous spitting which has been recognized as a habit exceedingly dangerous to health and disgusting in nature. It is an unnecessary habit, as unnecessary as defecation in public, or other practices injurious to health, morals, or ethics which have been discarded in the rise of the race from savagery. Recognizing these facts, it is natural for our health organizations to make strong efforts to do away with the spitting evil, but the net results of the combination of education and legislation towards checking the practice, has been up to now, almost nil. Undoubtedly, in the course of a hundred years or more present day methods for curbing the practice would have the desired effect, but if an immediate change is wanted we must not merely convert



a few people in this town and a few in that. We must convert fifty to seventy-five per cent of the population. We must finally have the whole population in that frame of mind in which the man who spits or coughs or sneezes improperly is considered without the pale, and so with other false practices. A national committee amply financed should be able to accomplish this result very quickly.

Instilling in the minds of the adult population certain basic health truths would be only part of the work of a national health education committee, and the use of advertising space is only one of the methods that might be employed in carrying out its program. Pamphlets and bulletins are used largely now to give detailed information on health matters to the public. The tendency is to furnish the public with scientific information, —to let them in on the "know." The idea is of course the correct one but the vehicles now used for putting it into operation are almost invariably bad. Board of health bulletins and pamphlets are subject to much criticism for their general unattractive, dry-as-dust methods of presentation. A national committee could do much towards standardizing such publications to a form that would be acceptable to the public.

Probably the most important undertaking remaining undone in the realm of health education today is the formulation of a standard course of study on health for our public schools, colleges and universities. The movement or system known as the mod-

ern health crusade is the only nationally used method of health instruction in vogue in our schools today. The crusade teaches eleven elementary health rules. It is best adapted to small children, though it is being developed for extension to older boys and girls. Objections to the crusade have been raised by educators, among the most important of which are: that even in instances where it is included as a part of the curriculum it is in reality an outside movement; another, that it is difficult to continue the crusade in the same school year after year. What is needed in our schools is a graded course, based on the crusade for the lower grades, but departing from such elementary methods with the advance in grade. The crusade is not so much a method of teaching hygiene as it is of teaching health habit formation. This is indeed an important thing to do and the principles involved should be kept before the children and enlarged on through all the grades.

In the teaching of physiology and hygiene stress heretofore has been laid on nomenclature of organ, bones, and muscles, rather than on function. History once was taught much in the same fashion. Now the process with history is entirely changed. Dates and names are so interlinked with events past and future, that the interest and attention of the pupils are aroused, with consequent retention. Thus was an educational problem successfully solved by applied psychological methods, which may as easily be adapted to health teaching.



With the advance of the pupil from grade school to high school and from high school to college and university, courses in elementary branches of preventive and possibly applied medicine should be taught and should be made prerequisite to graduation. What seems desirable is that the man on the street and the mother in the home should have a more extended knowledge of first-aid remedies and preventive measures. Health reports should be as easily understood by business men as market reports.

In conclusion, the most important

things before the health educator today are believed to be: First, changing habits and inculcating a knowledge of health fundamentals in the adult population; and second, working out a thoroughly practical course of health instruction for our schools and colleges. These are the important elements of a health education campaign whether worked out on a national or a local basis. It is believed that a national program must result if the nation is greatly to reduce the number of its unfit in any short length of time.

Scientific Societies Meet

NINE scientific societies in joint session in Chicago, December 28 to 30, conferred on a wide range of topics—social, psychological, and legal—having a direct bearing on public health. This was particularly true of the discussions before the American Statistical Association, the American Economic Association, and the American Sociological Association. Albion W. Small expressed the spirit of the meeting when before the American Sociological Association he stated the opinion that the ultimate object of all scientific inquiry is public welfare.

A specific instance of how pure science becomes socially profitable was brought out in the address of Judge Hoffman of the domestic relations court of Cincinnati. Through mental, medical, and social study of cases com-

ing before his court during the five year period just past the scientific handling of delinquency has so far progressed that, beginning with January 1 not a single child in his jurisdiction will be incarcerated in a penal institution. Diagnosis and treatment through psychological clinics to be established is to be substituted for the punitive measures which in the past have everywhere begged the question instead of solving it, and progressively increased the need for institutions to house children who should never have been institutionalized.

The advantages of team work between the several social agencies were emphasized in the evening sessions when addresses were given by the presidents of the three societies named. The statistician's viewpoint of calculated inquiry was well brought

out by William S. Rossiter in his address on "An Adventure in Population." Henry R. Seager, president of the American Economic Association, offered his explanation for social phenomena in the economic forces which it must be conceded are the broadest single causative factor in wide fluctuations either in numbers or status of large masses of the population. Rational inquiry and rational remedy were developed in the presidential address of James P. Lichtenberger, representing the sociologists, whose experience in adjusting idealism to existing circumstances has resulted in a philosophy of opportunism which makes possible a working basis for essential reforms.

A significant study, discussed in advance of the published report, was offered by James H. Tufts of the University of Chicago, who, under the auspices of the Russell Sage Foundation, has made a study of the education and training for social work. This study divides itself into two lines of inquiry: (1) Accepting as fairly well defined a considerable central group of activities, how far may social work wisely extend to various specified border fields; and, more important, how deep shall it go in its exploration and its methods of treatment and prevention?

Stated in terms of education and training, the issue is, (2) Accepting as undoubtedly necessary a certain type of training for the fairly well defined agencies of relief, aid, and administration or oversight, shall the institutions engaged in giving preparation stop with this conception of their task, or shall they aim at so broad and thorough an education and training for at least a minority as shall fit these for the larger and profounder tasks which may be conceived under the analogy of social engineering or social statesmanship? Shall they undertake the study of the fundamental forces of human life, of the ultimate values of human welfare, and of the great institutions of human society in order to meet that larger responsibility which no other profession than social work at present seems to accept?

The meeting was full of interest. The program was exceptionally well planned by departments to bring out the special lines of inquiry that are under way. From the standpoint of original contribution the psychological workers seem to rank first, and their work has been particularly fruitful in correlating work that has heretofore seemed to stand in separate categories.

Epidemiology in Europe

THE Health Section of the League of Nations published in June, 1922, the third of their series of bulletins on Epidemiological Intelligence, containing a most interesting map of the epidemic situation in Europe during the first quarter of the year.

Of all the countries in Eastern Europe, Russia has suffered most from epidemics during the last four years. During this time about seven million cases of typhus and relapsing fever were officially reported without counting the figures for the Red Army. The culminating point was reached in 1919 and 1920 when 4,917,000 cases of typhus and 1,259,500 of relapsing fever were officially recorded.

It is stated, furthermore, that these figures do not represent the total incidence, and must be multiplied by at least two and a half in order to obtain an approximate picture of the situation. The cholera epidemic of more than 176,000 reported cases which broke out in 1921, proved the most deadly visitation for many years.

Typhus has not been stamped out in Esthonia and Latvia mainly because of the number of persons returned from Russia, and for the same reason a serious situation existed in Eastern Poland during the winter of 1921-1922. This was due partly to the inadequacy of the quarantine stations and partly to the fact that

many of the repatriated persons crossed the frontier through woods and marshes thus escaping any sanitary control.

Before 1913, cholera and relapsing fever were comparatively unknown in Roumania. Since then they have appeared with moderate extent and severity and have been controlled without great difficulty. Toward the end of 1916 typhus and relapsing fever assumed extremely serious proportions. Particular mention is made of the effect of relapsing fever in awakening latent tuberculosis. Two years later relapsing fever had completely disappeared and typhus was greatly diminished. Highly virulent scarlet fever, often fatal within two or three days, appeared as typhus diminished and died out as typhus reappeared.

Conditions in Turkey, Danzig, Transylvania, Bukovina, and Bessarabia have been quite satisfactory.

Influenza in pandemic form, which appeared in November and December of 1921, was synchronous with a markedly increased death rate over a wide area. Northwestern Europe appears to have suffered most heavily while the outbreaks in America, Asia, and Africa were for the most part mild in type.

General Science Instruction Applied to Health

An outline for class work, together with sample papers, pictures of maps and exhibits prepared by ninth grade public school pupils relating to the water supply system of Cleveland are presented in the May, 1922, issue of the *General Science Quarterly*.

Such an organization of local material for instruction in general science seems to be a very desirable procedure. The outline of study covers such topics as the history of the development of the local water supply; methods of filtration and distribution; consumption and character of the water used; and local sources of pollution.

Simple laboratory problems are included in the course of instruction, —tests for the hardness of water, construction of maps of the plan of distribution, charts of the fall in typhoid death rate, and the building of sample slow sand filters.

Visits to the local purification plants coupled with such a course of study and instruction teaches the pupil the fundamental facts concerning an important municipal health project and general scientific principles, and develops a community pride.



Légende : ■ Typhus exanthématique. ■ Fièvre récurrente.
Explanation: ■ Typhus. ■ Relapsing fever.
 Echelle : Nombre de cas. 1 m. représente 100 cas. ● Localités atteintes par le choléra.
 Scale : Cases. 1 m. equals 100 cases. ● Cholera infected localities.
 Zone de famine. Famine area. Station de quarantaine. Quarantine stations.
 Lignes de chemin de fer fermées aux voyageurs. Railways closed to passenger traffic.
 Pas de données statistiques. No statistical data. Lignes de chemins de fer. Railways.

Epidemic situation in eastern Europe during the first quarter of 1922.

Indiana Tears Down Its Old Houses

By A. E. WERT, DIRECTOR, DIVISION OF HOUSING, INDIANA STATE BOARD OF HEALTH, INDIANAPOLIS, IND.

THE Division of Housing of the Indiana State Board of Health was put into operation on the first day of October, 1921, to administer the housing laws of 1913 and 1917 relating to the construction, alteration, and maintenance of tenement houses, and concerning dwellings or places of residence unfit for human habitation or dangerous or detrimental to life and health. Being a new division, it required much careful study and planning to get the work

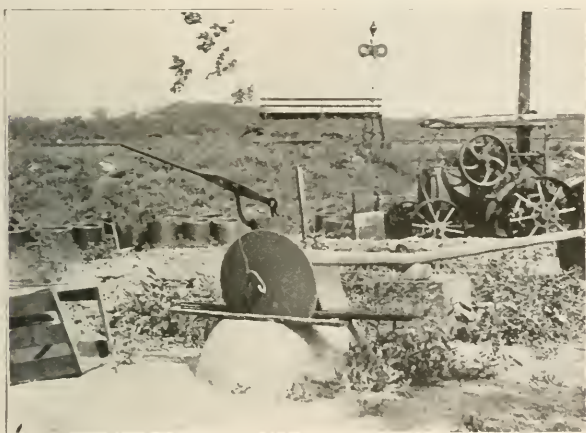
the local building inspectors, architects, realtors, and builders. The result has been very satisfactory and shows that in most cases these agencies are anxious and willing to cooperate.

Local machinery for enforcing the law of 1917 was already a disciplined unit consisting of local health officers, health boards, sanitary inspectors, and county health nurses, already accustomed to similar branches of work designed to conserve public health and safety.

During the one year of the existence of the Division of Housing, the work has consisted of field inspections, enforcing and following up provisions of the housing laws, assuring local health officials of state backing and help, investigating actual conditions, handling and enforcing obstinate cases in which local officials have not been able to get proper compliance with their orders, ordering improvements in cases that have not been brought to their attention and securing photographic evidence of existing violations, these photographs being used in connection with educational talks and prosecutions if necessary.

The department has received full cooperation of various city authorities and health officials throughout the state and has investigated and remedied many cases that have been brought to its attention by county health nurses.

It is not necessary to travel very far without having bad housing conditions emphasized at almost every turn. to find people "housed" in shacks, stables, old cars, old store buildings, basement and garrets, and the numerous improvised tenement and apartment rooms. None of these places are fit for homes and there is no excuse for the existence of such places in the wealthy state of Indiana. Mrs. Albion Fellows Bacon has said, "Bad housing piles up social wreck-



Lawrenceburg, corner Short and High streets; cesspool in rear of apartment building: full to top, contents of which were pumped into the street gutter; inspected July 10, 1922; condemned July 15, 1922, cleaned, repaired and covered.

properly started and this planning was made much easier by the thoughtful study and digest of the many reports of work accomplished by Lawrence Veiller of the National Housing Association of New York, by Edwin H. Sands, State Housing Commissioner of Iowa, and by Bleecker Marquette of the Cincinnati Better Housing League.

Indiana has its full share of tenement owners who would never move to improve living conditions for their renters except under compulsion of law. The dark, ill-ventilated rooms and halls, box stairways, inside rooms, want of yard space, lack of sanitary equipment, no fire protection, no privacy, overcrowding, and consequent breeding of disease and immorality are some of the things which the enforcement of these laws will prevent.

The law of 1913 required much pioneer work in securing cooperation of



Bloomington, Ind., Morton street; seven two-room apartments in frame shed over garage; concrete garage adjoining built tight against the frame building cutting off all light and ventilation except the two front windows shown and two similar windows at the rear end; rent per each apartment, \$8.00 per month; inspected October 27, 1922; condemned and ordered vacated November 1, 1922; vacated November 15, 1922; no water and no toilet.

Number of towns and cities visited.....	100
Photographs made	230
Inspection made	1,430
Orders issued	472
Orders compiled	441
Orders pending	28
Houses, rooms, parts of houses and apartments vacated.....	54
Houses and parts of houses razed.....	12
Houses and parts of houses repaired.....	49
Vaults and cess pools cleaned and repaired.....	83
Wells and cisterns.....	12
Halls lighted and hand rails on stairs.....	21
Inside toilets, water supply, plumbing, drains, repaired.....	72

age faster than churches can evangelize, faster than schools can educate, and faster than doctors can

The first annual report of the Division has been prepared and gives in detail the work accomplished during



Aurora, Ind., 204 Johnson street, building ready to collapse; contained one family at \$4.00 per month; inspected July 20, 1922, condemned and ordered razed by August 15, 1922; family vacated August 1, 1922; house razed and new building on the property about ready for occupation.

cure." There is not much difficulty in locating the sore spot in any community.

The personnel of the Division has consisted of the director, assistant director who is also chief inspector, and one follow up clerk.

the past year. Among the data given would be found the above items of especial interest.

Numerous complaints received from all parts of the state were also investigated and remedy suggested by the state division of housing.

Smallpox in London

BY OUR LONDON CORRESPONDENT.

LONDON has been threatened with an epidemic of smallpox.

Most of the cases which occurred were in the suburban district of Poplar in a poor neighborhood. There were forty or fifty cases and a few deaths and the lay papers frightened the inhabitants of London sufficiently to impel a large proportion of them to be vaccinated at once.

With respect to the effects of vaccination, many examples of its efficacy have been brought forward during the past few weeks. Recently certain opponents of vaccination quoted the ex-

perience of Nottingham in the year 1921 as favoring an anti-vaccination policy. However, Dr. P. Boobyer, Medical Officer of Health of Nottingham, has shown that this state is altogether at variance with the facts. The actual state of affairs in Nottingham during the epidemic of smallpox, February 1921 to January 1922 was this:

About half of the children in the city had been vaccinated. Not one of these contracted the disease. There were no cases of smallpox among children under ten years of age who had

been vaccinated. Among the unvaccinated children under ten years of age, there were fifty cases of smallpox. There were no cases of smallpox among vaccinated persons under thirty years of age, while for the same ages there were a total of eighty seven cases among the unvaccinated persons. Indeed the experience of Nottingham, far from being against a vaccination policy, is held by medical authorities to be one of the most remarkable pieces of evidence in favor of vaccination. It most assuredly points to the fact that the vaccinated child is protected against smallpox.

Some Census Figures.—It is shown in the Register General's Blue Book issued a short time ago embodying the results of last year's census that in Greater London area there are more than 500,000 more inhabitants than there were ten years ago, the present figure being 7,480,201. The most remarkable feature is the preponderance of women, the numerical excess over males now being 341,365, an increase of 72,362 over 1911. Of course, this is partly due to war losses among the male population. Incidence in sex proportions, however, lies mainly in their incidence on the marriageable population. The ratio of unmarried females per one thousand unmarried males has increased from 1,138 to 1,287 in the age group twenty to twenty-nine and from 1,413 to 1,886 in the age group, thirty to thirty-nine. In regard to housing the average number of families per occupied dwelling has increased from 1.51 in 1911 to 1.50 in 1921. Whereas the number of private families has increased by 9.5 per cent in that period, the growth in the number of occupied dwellings has been only 16.1 per cent.

Need for Clean Food.—There is great need in this country for laws and regulations with respect to clean food. Milk is exposed in a most careless manner. It is a common sight in London to see milk being drawn from a can in the street. This unclean and dangerous custom is prohibited by law in America. Meat is frequently carried through the streets of London uncovered and is displayed in various parts of the city outside butchers' shops where it is accessible to contamination by flies and dirt. This custom is not permitted in America. The law as to canned foods here is lax and a pure food law greatly needed.

The new Public Health League of Kansas City has a section to carry on locally the work of the American Society for the Control of Cancer.

Federal Standards Urged for Food Inspection*

By E. H. PAPE, M.D., HEALTH OFFICER BERKELEY CALIF.

WHEN we speak of food inspection we usually think of meat or milk inspection, with possibly the most emphasis placed upon milk inspection. This is probably because milk has in a number of cases been the agent for spreading disease and epidemic. But the disease carrying properties are not the only things to be considered in food inspection,—there is the wholesomeness and the food value to be considered also. In meat inspection we are accustomed to think of slaughter-house inspection, antemortem and postmortem inspections. This is good but it does not insure that the consumer will receive the meat in a wholesome condition or prevent the retailer from exposing the meat on a counter until it becomes tainted and decomposed, then make stews or corn beef out of it, or, as is commonly done, grind it up into hamburger and weenies where the good is mixed with the bad and is not easily detected.

Then there is the question of tuberculous fowls and the diseases of fish on which very little has been done and which do not come as a rule under the Federal or state meat inspection. The meat and milk is, however, a very small portion of the food supply. The molding, fermenting, and souring of fruits and cereals; the infesting of flour with weevils, grubs, and moths that find their way into the bread and other bakery goods; the rice weevil that infests the macaroni and noodles, the rice mites which are so small that they are usually overlooked in the rice; these, and myriads of other things having to do with food inspection, are mentioned merely to show the prospectus of adequate food inspection.

It has been said by very good authority "that history is a reproduction of geographical laws, that character is a function of latitude, and that a man is what he eats." It is certainly true that a man cannot be his mental and physical best if he is not well, and he certainly cannot be well, if he does not have good, wholesome food. It has been a long established fact and has been proved both by animal and human experimentation that a well nourished subject will resist disease and the same

subject when poorly nourished will easily contract a given disease. When we consider the delicacy of the intrinsic mechanism of the digestive tract, or the sickening effect of the psychic sensation that is transmitted through the vagus nerve at the thoughts of eating or smelling something unwholesome, or in the mildest form the depression of auto-intoxication caused by eating bad food, we begin to understand something of the value of food work, and when an outbreak of food poisoning occurs such as that at Kewanee, Ill., some few years ago when several hundred people were stricken on the streets and in their homes and doctors from the surrounding country had to be drafted to take care of the sick, we see what food inspection can prevent.

Town Judged by Food

Since the health and wealth of a community depends upon its food supply, much attention should be given to food work. It is too often thought that the work of the health department has to do only with contagious disease. Important as contagious work is, it deals with only a very small per cent of the population while food work deals with the whole population, in fact, the workers and producers on which the community exists. A city or community is often spoken of or is rated on the basis of its food conditions. Travelers usually stop and transact their business in towns or cities which have good food accommodations. It is the best advertising that a town can have.

Food conditions are a matter of education, not legislation. Legal means should be used only when all other means fail and then as a means to enforce the ordinance and command, and not demand, respect for the department. This is not to infer that the department should be lenient. On the contrary, the department should be firm and consistent. Since food inspection is a matter of education, it demands a leader or director, and such direction should come from the department conducting the inspection. The inspector should be well trained and well informed about all matters having a bearing upon his work. He should have a good personality, be a good judge of human nature, and above all have good self control. He should be able to edu-

cate the public on matters of good food. For instance, some people have the idea that meat should be well hung until it is covered with mold or what they call well ripened in order to be tender. They think that when the aerial hyphae is wiped off that the mold has been disposed of, but when it is explained that the plant is a saprophyte and that its mycelium reaches deep down into the tissue of the meat where it takes up the decomposing substances and that the plant cannot live on good food but lives only upon decomposing or rotting substance, and that moldy food stuffs will readily kill chickens and cattle, they soon make up their minds that they do not want moldy foods. The courts have ruled in this respect that those who want to eat such foods can do so but such foods cannot be kept in any public market where it is likely to be sold to the general public.

Inspection must be done locally and the inspector must be on the job and make frequent inspections. A state inspector cannot do this. Most people are willing to clean up and sell good food if everybody is made to do so. This has been proved by the largest and best establishments that they gladly welcome inspection and are willing to use the very best food obtainable so long as other people are made to do so, but just the minute inspection stops, they immediately begin to use anything that can be used in order to compete with some of their competitors who are less scrupulous.

It is human nature to be more particular about the way the shop is kept or the business is conducted if the proprietor knows that an inspector is on the job. The score card has long been considered a strong factor in inspecting work, and particularly, if the scores are published in the local papers. This creates a great deal of interest and enthusiasm if everyone is convinced that the inspection is fair. The greatest need at the present time is for a Federal score card that would serve as a standard score card for all cities. Competitive scores could then be arranged which would do for food work what interscholastic contest has done for collegiate athletics.

Late in the year 1921, Berkeley adopted a comprehensive ordinance

*Presented before the health officers section of the League of California Municipalities, September 21, 1922, Palo Alto, Calif.

calling for the use of the United States Public Health score card and used the same for all kinds of food shops excepting meat. It was surprising to those connected with the work to find that most of the shops fell below score and many were in

such condition that scores could not be made. After considerable effort and diligent working, fairly satisfactory scores were obtained. It was also a surprise to see how quickly the different firms or shops raised their scores after the system was once es-

tablished. We feel that we have been able to accomplish a great deal in a short time by the use of this system, and wish to have other cities join us in order to establish a standard score card and method of scoring.

Public and Private Health Agencies*

An Inert Public Is the Chief Obstacle to Effective Health Work

By C. V. CRASTER, M. D., HEALTH OFFICER, NEWARK, N. J.

FORMER discussions upon this subject have revealed a variety of opinion as to how the public shall best be served by health agencies, both official and non-official, in order to promote the welfare, safety, and health of its individual members. The chief aim of health workers to serve the public interests is, however, frequently lost in a cloud of lesser interests.

Experience, that most terrible of taskmasters, has taught mankind through the ages by pestilence, plagues, and famine the definite truth that man to save himself must first have knowledge to understand the reason for his sufferings.

It is this mass of historical experience of the written word of suffering that has been the most important asset in our public health superstructure of today. The foundation of this new science being basically historical, it is important to know the mental picture of man's reaction to the restraints of authority if we wish to determine the best means of applying modern principles of public sanitation and hygiene.

The care of community health must necessarily appear a changing problem. We grow into what we find will meet our everyday situation, so that the principles that formerly guided our ancestors would appear to us outrageous if applied to our modern situation. It was the simple and unsalable facts of common welfare and decency that produced the public opinion which led to the passing of health laws and the appointment of boards of health to enforce them. Feeble though the powers of the early boards of health were, public opinion supported them when epidemics menaced public safety. The functions of the old boards were primarily the exercise of police powers directed to-

wards the attainment of a minimum standard of cleanliness around buildings and upon public streets.

As new facts were garnered upon the cause of disease, new laws were passed to be more or less generally enforced as community measures to secure the minimum standards of hygiene and sanitation of every individual. This was primarily true of contamination of water supplies, of food and milk supplies, and of sewage disposal. Not many years ago every household had its own cow and private cesspool and well conveniently located for contamination.

The Issue Broadens

The citizen having surrendered his individual right to do what he pleases so that his neighbors might benefit as a unit, only within the last fifty years has he had time from his building, his harvesting, and his wage earning to observe and think upon those questions of national health which have been brought up to him for discussion and intelligent comment. It is this new era of leisure to think that has enabled great nations to make vast strides in national development. This era made possible the adoption of vaccination and the acceptance of the doctrine of Pasteur, of Lister, and of Koch.

Having mastered, so to speak, the rudimentary principles of sanitation and disease prevention, there has come a time when the problems of health to be solved are so huge, and apparently insoluble by reason of the inert mass of lack of understanding among the people, that the old weapons are useless. New ones have to be forged. The application of sound principles of modern health practice is everywhere opposed by the inertia of ignorance, of diffidence, and even of actual hostility by certain classes of every community.

It is easy to teach hygiene where

comfort and ease exist and when the pressure of want does not interfere. It is an entirely different thing to apply such principles in squalid tenements and overcrowded rooms, and yet it is hither our efforts to improve conditions must be directed. It was the recognition of the need of education, for publicity, and the placing of public health propaganda before the people in an attractive and simple manner that has brought forth in America the organization of the various unofficial health agencies. It has been suggested that the number of these agencies is a direct reflection upon the work of the official agencies. This, however, is a distorted view and one not held by those familiar with the social and economic problems that face all health organizations. In contrast with the freelance outlook of the private health agencies, the health board is the official agency of the people and by its constitution cannot be adapted to meet all the needs of modern health activities. Such police powers as it may exert are limited by public opinion. Its activities are influenced by various local needs and the restrictions of inadequate appropriation.

However broadly conceived, its policy is small in scope as compared with the ideal requirements of health activities. One of the greatest evidences of a public awakening from the "let George do it" attitude, is the formation of the private health agencies. Although sentiment and charity have in the main promoted such agencies, the results achieved will necessarily depend upon the quality of their publicity and propaganda. The feeling of community effort is one that appeals to many people, and indeed the success of these agencies in focusing public attention upon health problems has been a wonderful incentive to fresh endeavor on the part of the official agencies. What then shall

*Reprinted from the Monthly Bulletin of the Department of Health, Newark, N. J.

be the functions of the two classes of health agencies will depend upon the very definite path blazed by each in the progress towards health ideals.

Analysis of Function

If the various activities of health departments are arbitrarily analyzed by a simple method of scoring, it will be seen that certain divisions of work are capable of definite and different means of application. Thus with a minimum of six points the distribution may be made as follows:

Field	Law Enforcement	Publicity	Education and Propaganda
Sanitation	.. X X X X		X
Contagion	.. X X X X	X	X X
Tuberculosis	.. X	X X	X X X
Child Hygiene	... X	X X	X X X
Food and Drugs	... X X X X X	X	X
Veneral Disease	.. X	X X	X X X
Mental Hygiene	.. X	X X	X X X
Vital Statistics	... X X X X	X X X	

The principles of sanitation and hygiene are very generally accepted today, so that there will be very little need of publicity or propaganda especially in our cities whenever there is need of law enforcement for violations of the sanitary ordinances. This does not apply, however, to the more rural districts. It is for this reason that there are few private health agencies that specialize upon this division of public health.

The principles of contagion are generally accepted, so that law enforcement is the real need in this division.

The suppression of tuberculosis is now well recognized to be within our view. This can only be accomplished by a wide publicity by general education and propaganda in all classes of society.

Child hygiene is now a well recognized health board activity for the reason that its propaganda and publicity are only possible by direct contact with mother and children at or before birth. This cannot be effectually carried out by private agencies.

The division of food and drugs is almost entirely a matter of authority and effectual supervision, and of law enforcement; little publicity or education is needed among the general public.

Veneral disease, only of late years accepted as public health activity by the official bodies, is still in need of a vast amount of publicity and education. It is still uncertain how this can best be accomplished. During the

last war the government through its army, medical and United States Public Health departments entered into active competition with the private agencies in effective publicity and education in this field. This division of public health may best be served by activities directed along the lines of attractive and simple publicity and education.

Mental hygiene, the newest of our health divisions, will require continuous propaganda to place it in the important place it deserves as a public health activity.

Vital statistics, that is, the use of material gathered from reports of births and mortality, and their authority will depend upon accurate reports made in conformity with state and city laws.

It is evident, therefore, that for many important items of public health a wide and general publicity and education will be a necessary requirement for bringing these subjects before the public. The official health agency cannot hope to command the funds necessary for aggressive action in any one of these divisions. The very diversity of its activities makes it impossible to direct any great amount of its funds for publicity and propaganda as extensive as that estimated as necessary for modern purposes.

Prepare the Soil

Here is manifestly the rôle of the private health agency. It can popularize by publicity and by education the accepted principles and truths of its own particular health line, seeking to put these in such a way before the public that they will become more or less accepted principles of every day life. Certain private agencies have in the past lost time and prestige in using their subscribed funds for purposes usually regarded as administrative and in seeking to maintain this stand when official agencies have developed activities along similar lines of work. This is particularly true of certain clinical activities and field work, logically true functions of boards of health. The bringing of health education to the home should be in the hands of employees of health boards, who alone have the legal authority of the open sesame and whose purpose in entering such homes is absolutely "communistic," if I may use such a word. The public health field work carried on by private agencies, particularly insurance companies, is no doubt useful in a wide sense, but nevertheless is difficult to separate in the public estimate from business propaganda and loses much of its

force from this very association.

If during a fight against any communicable disease a public clinic for advice and treatment is necessary, this should undoubtedly be in the hands of the official health agency. It alone can bring to bear all the forces of government to eliminate contagion from the community. A strong point in the suppression of most of these diseases also is the authority to invoke the powerful arm of the law where the public safety is menaced by carelessness or outright criminal actions. The usurpation of official administrative function by private health agencies is a fruitful cause of loss of efficiency and an undesirable feeling of competition in health activities. A private health agency which is carrying on administrative health functions as a result of the neglect of official action is necessarily a stop-gap and should function only until the official agency can be galvanized into action. Indeed, a good part of the education and propaganda of such an agency should be directed toward this end. The private agency generally fails as an administrative machine because of its lack of authority to act as a law enforcement department.

The present position with regard to the division of responsibility for the control of tuberculosis in many of our states has developed a sound arrangement for the cooperation of public and private agencies through the dispensary clinics and the follow-up work by field nurses and the erection and maintenance of sanatoriums in state, county, and local health activities, in which all the necessary clinical work and treatment is provided for. The publicity, education, and propaganda upon the suppression of tuberculosis have been gradually taken over by the national and state anti-tuberculosis leagues who, by means of the sale of Christmas seals and other collections, provide the means to carry on in the press a wide publicity campaign directed along the lines of personal protection against infection and the necessity of providing sufficient sanatorium beds by the local authorities. Education in the schools is also a strong point in this campaign against tuberculosis.

The official agency should be in the position of a good commander who welcomes all his allies, regular or irregular, who will aid him in defeating the common enemy. Cooperation to fight disease should be mutual, the official agency recognizing the popular appeal of and giving due credit to those private agencies doing their part in popularizing the fight for pre-

ventive medicine and public hygiene. On the other hand, the boards of health should be the official headquarters of all health campaigns, guarding jealously and using judiciously all those police and administrative functions with which they are endowed by law. The influence of a well organized board of health with a competent and trained health officer is incalculable, giving to the public that security of public welfare which the publicity and propaganda of the volunteer agency usually help to emphasize.

Active and incessant publicity far beyond what the official agency can hope to accomplish will be necessary for many years to come. Volunteer agencies can alone help to make public the voice of the poor and the socially enslaved. When all is said and done, however, there is no one, who is familiar with the writings of Jacob Riis, of Robert Hunter, or of General Booth, or who has had a first hand knowledge of social conditions in our large cities but will confess to the total inability of health agencies of any kind as at present constituted to

make much impression upon the inert mass of people who are physically and mentally unable to respond to the teachings of modern health principles. Only social and economic improvement will raise the curtain of gloom. "Sickness," says Hunter, "assumes a new and more terrible meaning when one realizes that the mass of wage earning families are pathetically dependent upon some one person's health. Anyone familiar with the poor knows with what grim determination half sick workmen labor under this heavy responsibility." How futile seems to be our health propaganda in the face of the misery of the laboring classes.

Promised Land of Health

Great improvements in public health will wait upon better housing, better food, more rest, and recreation for the individual worker. "The poets and prophets," says Ruskin, "though they have told us much about the life that is now. They have had—they also—their dreams and we have laughed at them. They have dreamed

of mercy and of justice, they have dreamed of peace and good health, they have dreamed of labor undisappointed and of rest undisturbed; they have dreamed of fullness in harvest and overflowing in store; they have dreamed of wisdom in counsel and providence in law, of gladness of parents and strength of children and glory of gray hairs. And at these visions of them we have mocked and held them for idle and vain, unreal and inaccomplishable." Public health can not disregard the real social problems which retard its final success and attainment. Within modern times the fabric of this new temple of healing has been supplied from nearly every science and art in the quest for material. It has become a science so intimate and far reaching, with ambitions so altruistic and benevolent that the public cannot be blamed for being somewhat loth to accept its seemingly visionary ideal.

Only by a wide tolerance of every type of public health effort to improve our people may we hope to reach even a part of our promised land.

Detroit Corrects Postural and Foot Defects

POSTURE and foot conditions exert an important influence on health. They are responsible for many ills, for fatigue, for slovenly personal appearance, for inefficiency. The Detroit Public Schools, realizing the dangers of faulty posture and weak feet, have made their elimination two objectives of their individual gymnastics plan.

"We put so much stress upon good posture in our schools because it is one of the fundamental health habits," writes Augusta H. English, assistant supervisor health education, department of individual gymnastics, in *City Health*. "When the body is used rightly or in the normal state of

health, there is the least possible strain or friction. In good posture the figure should express strength and poise without rigidity and tenseness. The trunk or body being given its greatest length, there is ample space in the upper part for heart and lungs to function properly and for organs of the abdominal and pelvic regions to do the same. This is impossible if the space in which they lie is constricted. Good posture is a position of readiness and efficiency for action, and besides promoting health gives the impression of vigor, alertness, energy, and dignity. It is graceful and pleasant and usually indicates self-control and self-respect.

"If the question is asked whether a boy or girl is less healthy for being round shouldered the answer is that he may or may not be, but while one boy or girl with round shoulders, which carries with it the lessened use of upper ribs in breathing, may escape serious consequences, another may not. One child may go through life with a mild form of lateral curvature of the spine and not suffer but hundreds consult physicians every year because of this condition. Many an individual wears improper shoes without bad results while hundreds pay with flat feet and suffering. It is wisdom to avoid these dangers."

The department of individual gym-

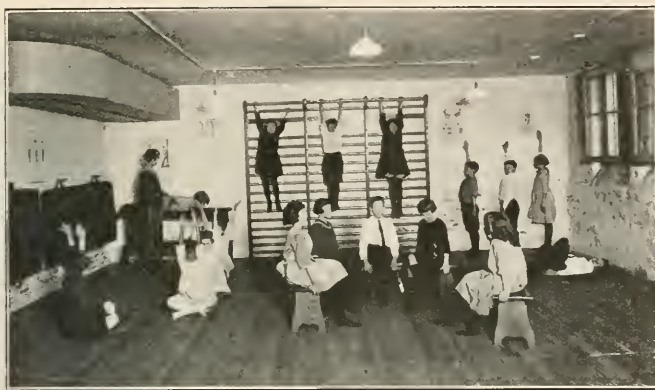


Fallen arches before gymnastic work was undertaken.

Fallen arches after three months' class work.

Hollow foot before corrective work was prescribed.

Hollow foot after three months of class work.



A fourth grade class in the individual gymnasium of Columbian school, Detroit, engaged in corrective exercises.

nastics prescribes a regime for the child with postural defects—such as hanging on bars, standing with head back, chest up, lungs filled with air, and other exercises tending to correct his defect. Orthopedic treatment is accorded the pupil with postural or structural scoliosis.

The department aims also to help eliminate cardiac weakness by cooperating closely with the physician and giving exercises to strengthen the heart and to aid in increasing the child's resistance to progress of the disease.

A common defect for which the department has a definite procedure for correcting is weak feet or fallen arches. A foot print is made of those pupils giving evidence of foot weakness at the examination and three months later, after a series of exercises have been taken, another foot print is made to determine progress. Five prints representing a good type of foot and working back to the fallen arch are exhibited and the child is stimulated by comparing his own foot print with this scale.

The work done in individual gymnastics is largely preventive and deals first with the student individually and then as a member of a small group. Physical examinations are given in the first and fourth grades of all sixth-grade schools, and in the third and sixth grades of all eighth-grade schools. In the spring a second examination will be made of all pupils selected for special exercise work.

The department is carrying on work in twenty-five schools including elementary and intermediate, and the plan is to increase the number as the staff of teachers is increased. The class period is thirty minutes and at-

tendance in each class is limited to twenty. The schedule of each teacher includes two schools, one of which is

visited three days a week, the other two days. A small number of teachers give whole time to one school. The department also supervises the exercise work in the schools having open-air rooms and the class at the Russell school for children having organic heart disease.

The cooperation of the children has been of the best. They are interested in directions by which faulty conditions can be improved and are eager to get "points" on the health rating cards. Through this work of reclaiming the young, many will doubtless be saved from serious defect in later life.

Citizens of Baltimore county have organized a public health association. A constitution and by-laws were adopted and fifteen district directors and six directors at large selected. The new association will continue the work heretofore carried on by the Baltimore chapter of the Red Cross.

How New Zealand Saves Babies

FOR a considerable number of years the Dominion of New Zealand has had a lower infant mortality rate than any other nation in the world. Australia, Norway, and Sweden have been her nearest rivals in the competition but at no time since 1910 have her records been equalled. Next have come Switzerland, Netherlands, South Africa, Denmark, England and Wales, all of these for the most part have been in the lead of the United States birth registration area. The present impetus in this country under the stimulus given by the Sheppard-Towner Act, lends especial interest to the study of methods and conditions entitled "Infant Mortality and Preventive Work in New Zealand" which has just been issued by the United States Department of Labor through the Children's Bureau.

For the period 1872-1874 in New Zealand the number of deaths of infants under one year of age was 105.9 per 1,000 live births. From 1875 to 1879 the rate was 101.5, or practically the same as that of the United States birth registration area as late as 1916. By this latter year the New Zealand rate had fallen to 50.7, or half its former size. In 1919 it reached the new low level of 45.3.

From 1872 to 1905 a rapid and continuous decrease in the rate of infant deaths from epidemic diseases and tuberculosis took place,—a de-

crease which the report attributes to the combined influence of improved sanitation, extension of the powers and improvement in the administrative methods of the public health authorities, and increase in the professional and popular knowledge of the best methods of maintaining health. The death rate from these causes is still decreasing and by 1905 its reduction had already brought the New Zealand infant mortality rate to a point lower than any yet reached by the United States birth registration area.

The report points out that while reductions are more easily secured when the initial rate is high than when it is low, during the period following 1905, the decline in the infant mortality rate of New Zealand, instead of becoming less pronounced, was strikingly accelerated.

In 1907 there was formed in one of the cities of an organization which spread throughout the Dominion and become known as the Royal New Zealand and Society for the Health of Women and Children. By 1919 it was reaching through its infant welfare centers more than one-fourth of all the babies born in New Zealand, or probably the great majority of those most in need of such care. All classes of society avail themselves of the services of the specially trained nurses employed by the society. The services are not regarded as being on a chari-

table basis. The society, which maintains a special baby hospital for the training of the nurses, supplies a weekly column in the newspapers, maintains clinics and home visiting service, is declared by the Children's Bureau report, to be undoubtedly the most important influence in the reduction of the infant mortality rate.

The government of New Zealand, in addition to its cooperation with the Royal New Zealand Society for the Health of Women and Children, main-

tains six state maternity hospitals; trains maternity nurses; licenses and supervises all public and private hospitals; and regulates homes in which children under six years of age are boarded apart from their mothers. In 1904 the government required the registration of midwives and formulated a standard course for their training. Cottage hospitals have been established in the remote districts and nurses appointed to work in these fields. Physicians have been sub-

dized to take up practice in regions where otherwise they would have difficulty in making a living.⁹

Birth and death registration in New Zealand have been excellent for a long period of time so that an accurate measure of progress is possible.

This report by Dr. R. M. Woodbury is based on material obtained by the author during a recent visit to New Zealand. It pictures a condition that should make all other nations of the world envious.

Sanitary Considerations of Swimming Pools

CLEANLINESS is essential to health. Sanitary science has evolved out of the organized work undertaken in the solution of specific problems in securing and maintaining cleanliness under any and all conditions. The minimum sanitary standards have gradually been incorporated into hygienic codes which represent the basic conditions of public health. Sanitary codes are constantly subject to revision according to the changing habits of a people.

Just as adequate ventilation has become an engineering problem under the complex conditions of modern life, so does water purification encounter heretofore unconsidered forms of pollution requiring new mechanical and chemical means to combat. The old swimming hole with its constant motion and perfect aeration afforded every advantage of recreational activity without carrying the concomitant menace of contamination that attaches to the public bath in urban communities.

Nor did the earliest indoor pools constitute the varied sanitary problem represented by the swimming pool today. Available in the past only to the fastidious members of college gymnasiums or exclusive clubs, the number of bathers who patronized the tank in a month would scarcely equal the number of bathers in one of our modern public swimming pools in a single day. With this increase of patronage the wasteful and costly method of putting the pool out of service for a slow process of draining, cleaning and refilling with heated fresh water would be as impracticable as to rely upon the hygienic habits of the individual bather to hold himself to safe and hygienic practice in the use of the public bath.

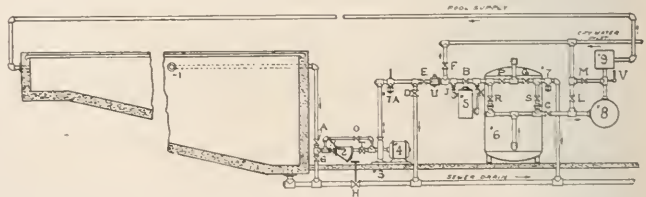
Certain hygienists hold that the tanks of penitentiaries, jails, asylums, hospitals, and charitable institutions should be replaced by showers. This

overlooks the therapeutic value of the bath and its recreational aspects, and evades the problem of bath sanitation rather than meets it. All public bath houses should be arranged so that the bather will be compelled to pass under a shower and wade through water before entering the pool. The water of public bathing pools should be examined bacteriologically by the local health officer, and methods of sterilization utilized when advisable. Attendants in charge of bathing pools should be instructed in methods of detecting cases of infectious disease and should be required to exclude from the pool all persons showing evidence of infection.

Bathing should never be permitted in polluted water. Beaches in the vicinity of contaminated water should be placarded as dangerous. The indoor pool presents specific problems of sanitation that can be met by the routine observance of prescribed conditions. It is evident that measures of personal hygiene must be supplemented by attention to the tank itself, and to the water. Many methods have been recommended for the disinfection of water. In the application of ultra-violet rays to the disinfection of water the water is re-circulated through a chamber in which the violet ray is generated with a mercury

quartz light. Twenty-six watt hours per cubic meter of water will serve to disinfect six hundred cubic meters of water in twenty-four hours. Under some conditions the water so exposed will be rendered sterile. Impregnation with ozone is also utilized, but the sterilization of water by chemical means is the usual method and of the various chemicals recommended for this use, chlorin, carefully regulated in accordance with the amount of organic matter in the water, is the most expedient. The principle of the several types of chlorination systems is about the same. Chlorination is usually obtained through the use of hypochlorite of lime, or by the use of chlorin gas. If chlorination is to be used in conjunction with slow filtration, the chlorin is usually applied directly to the water leaving the filters.

Pool sanitation is not identical with water purification. Chemical treatment of water, immediately effective in action, will actually sterilize the walls of the pool and the piping throughout the recirculating system. Mechanical means of removing the sediment from the bottom of the pool, mechanical filtration, and re-circulation of chemically treated water combine to meet the requirements of the situation. The efficiency of a mechan-



Diagrammatic picture of re-filtration system for swimming pools: (1) Pool suction cleaner connection ten inches below water line when pool is full; (2) Y body hair strainer with blow-off cock and removable strainer cap; (3) Centrifugal pump mounted on cast iron base and connected to motor; (4) Motor with flexible coupling; (5) Confluent feed or alum pot used also to admit sterilizing solution to filter; (6) Quartz type water filter for exclusive use of swimming pool; (7) Sight water glass for sampling water leaving filter; (8) Water heater pressure coil pipe for low steam pressure; (9) Sterilizer equipment connected to re-circulating line.



Sanitary installation and routine inspection should make the health conditions of the swimming pool as nearly automatic as possible. Scientific considerations reduce the cost and increase the efficiency of public health requirements pertaining to public bathing facilities.

ical filter depends upon the kind and amount of coagulant used and the method of application.

Convenience and economy of operation and washing are points to be considered in installations. Bacterial efficiency of the average mechanical filter averages between 43 and 61 per cent. The best obtainable bacterial efficiency is around 98 per cent. Mechanical filters should remove between 60 and 70 per cent of organic matter. Cleaning of the filters is usually accomplished with filtered water.

An efficient re-circulating filtering system must include a suitable strainer, pump and motor, filter and heater, and a practical system for sterilizing the water. In the installation shown in Figure 1 two outlet connections located in the deep end of the pool are connected with the pump suction. When the pump is in action the water is taken from the deep portion, is filtered, subjected to chemical action, and returned to the pool through two inlets in the shallow part of the pool. The arrangement of the re-circulating fittings is such that all the water is withdrawn and treated every twenty-four hours. Hair, lint, cuticle, and foreign materials which find their way into the pool can be removed by suction cleaning, which takes this burden from the filtration system and reduces the difficulties of cleaning the filters. In this manner the water in a swimming pool can be effectively purified for an indefinite period without a complete emptying of the pool, a sufficient amount of water being permit-

ted to enter the pool each day to take care of the waste from overflow, splashing, etc.

The principle and general construction of all pressure filters differ in but two important mechanical details, (1) the strainer system, and (2) the filtering material. Strainers insufficient in capacity or complicated to clean become clogged, and the imperfectly filtered water retains sufficient organic matter to produce odors that require a complete overhauling of the system. The strainer should be sufficiently fine to prevent the passage of even the finest of filtering materials, and the piping so planned that the flow cannot be obstructed by these particles. Filtering material from ground white quartz, chemically pure to within a fraction of 1 per cent, removes all particles in suspension in the running water. The filter is cleaned by a reversal of the current, and the filtered impurities are washed from the top of the filter bed directly into the sewer. The washing operation is accomplished by simply shifting a lever. After the water leaves the filter and just before it is returned to the pool it is chemically treated.

An installation of standardized use in a gymnasium or for athletic contests is twenty feet wide by sixty feet long. Such a pool with a graduated bottom 7 ft. 6 in. at the deepest point will contain around fifty thousand gallons of water. Suitable construction for such a pool is a concrete wall ranging in thickness from twelve inches at the top to eighteen or twenty

inches at the bottom, the whole to be thoroughly treated with water-proofing and tile. Entirely around the pool near the top is provided an overflow or gutter drain. This marks the high water level. The main drain at the lowest point in the pool is utilized only when the pool is to be completely drained. Re-circulation is accomplished through the two sets of openings previously described. The approximate cost of building such a pool is about twelve thousand dollars. The mechanical equipment necessary for circulating, filtering, sterilizing, heating, and cleaning will represent an additional outlay of something like twenty-five hundred dollars. The expense of operation will naturally be much less in recirculating systems than under the old methods of emptying, cleaning, and refilling the pool. So have newer methods of sanitation taken care of the hygienic features essential in the public bathing pool.

Low Mortality from Dengue Fever

While there were more than 150,000 cases of dengue or "breakbone" fever in Texas during the summer months of last year, little or no mortality resulted according to medical directors of insurance companies of the state. Some death claims were paid by insurance companies as a result of complications from dengue fever, but so far as could be learned there were none from dengue pure and simple. The malady has been prevalent in Texas for years and this past year it merely showed up in the larger cities and appeared to be more noticeable because of the publicity given it. The victims were rarely confined to their homes for more than a week if they suffered from nothing more than an attack of "breakbone" fever.

According to the *National Underwriter*, many insurance companies reported no claims paid for uncomplicated dengue, but a considerable number of claims were paid for pneumonia and other diseases that were thought to be complications. The health insurance companies paid many claims though most of them were small. It is stated that health officials report three deaths from dengue in ten thousand cases that occurred in and near Dallas.

Such an occurrence suggests the need and value of morbidity statistics now collected by those cities and communities that are in the front rank of participants in the public health movement.

The Heart in Medical Selection

THE role of diseases of the heart and blood vessels in denying application of life insurance as well as in the mortality of accepted risks is of the greatest importance. In a total of more than eighteen thousand declinations by the New England Mutual Life Insurance Company 52.4 per cent were due to abnormalities of the circulation, and in a total of nearly 33,000 deaths 32.5 per cent were caused by cardiovascular disease.

From the standpoint of the company issuing life insurance it is highly desirable to be able to distinguish among applicants those who are seriously impaired and those who are not. If such procedure were possible it would protect the company from accepting bad risks and also be of value in aiding applicants with minor cardiac involvement in securing insurance.

It is reported in *The New England Pilot* that Dr. H. M. Frost of the home office of the New England Mutual Life Insurance Company is attempting to develop a method by which an examiner may determine whether applicants with abnormal heart signs are seriously impaired. The apparatus consists of a compound pressure gauge and spirometer. The

individual to be examined is required to perform various acts, such as holding a full breath, expelling the breath as far as possible, blowing and inhaling against the gauge, and blowing to complete capacity through the spirometer. It has been noted that in the course of such steps, the systolic blood pressure develops a surprising degree of fluctuation. "One hundred individuals—normal, as far as could be determined—were subjected to the test in order that a normal standard might be decided upon for working purposes. At the same time, about thirty individuals, who presented abnormal heart signs, were subjected to the test with results which suggested that it gave some indication of the condition of the heart and blood vessels." Though it requires considerable skill and experience on the part of the examiner to follow the rapid fluctuation in the blood pressure, the test is easily applied. It also has the advantage of causing no apprehension on the part of the applicant.

It is planned to extend the use of this test to other agencies for the purpose of obtaining a sufficiently large series of cases to determine its practical value.

periods." Such children can be taken care of effectively in any open air schoolroom with other children suffering from divers conditions, Dr. Schmidt asserts. They may even take exercise with the other children providing the physical culture teacher is instructed to watch for symptoms signaling cardiac distress.

In order better to study the cardiac child and to demonstrate the efficacy of the fresh air treatment, the Detroit heart clinic committee segregated a group of twenty-eight children at Russell school in an open air room furnished with Kalamazoo chairs. Aside from their regular study, these children receive one-half hour of graduated exercises with dumbbells under the supervision of a competent teacher twice each day. For nourishment they receive milk and graham crackers in the morning and afternoon of each day, following which they are required to rest in their reclining chairs for a period of about half an hour. Many fall asleep and are not disturbed, waking of their own accord.

Exercise control of these children outside school hours is a serious problem. Many confess that they take strenuous exercise outside of school. Supervised exercise, however, has proved of great benefit to the children improving their heart condition and physical appearance, and increasing their weight. The fear that many physicians and parents have in regard to exercise for cardiac children is unwarranted and based on the old conception that heart failure was due to a mechanical factor. Infection rather than exercise is to be feared.

The magnitude of the infection factor is seen when a large proportion of the 2,000,000 sufferers from heart disease in the United States give a previous history of rheumatism or chorea. As these diseases are common in childhood and adolescence, measures protecting the school children are to be sought and practiced that the cardiac child may through proper care outgrow his weakness. To eliminate cardiac disease attention should be focused on the child rather than the adult.

The importance of any régime which will benefit the cardiac child is seen when statistics show that heart disease ranks higher in mortality than any other disease. Of the 148,000 school children examined in Detroit's survey over a year ago, 1,373 or less than one per cent were found to have some heart defect. This percentage was low compared to other cities.

Open Windows for Cardiacs

OPEN air schools for tuberculous and malnourished children have been of recognized benefit for a number of years. Now comes Detroit which gives its cardiac children equal benefits of fresh air, diet, and rest.

"Cold fresh air is beneficial to child cardiacs," states Dr. Harry B. Schmidt in the *Journal of the American Medical Association*, "provided they are warmly and lightly dressed with sufficient covering during rest



Open window room, Cooper school, Detroit. Cardiac children as well as the tuberculous and malnourished benefit from the fresh air.

How Will the County Board Vote?

BY THEODORE J. WERLE, EXECUTIVE SECRETARY, MICHIGAN TUBERCULOSIS ASSOCIATION, LANSING, MICHIGAN.

IN HUNDREDS of little county-seat cities throughout the United States that question, "How will the county board vote?" is agitating groups of socially minded women who are urging one type or another of county welfare reform. Just now, most of these little groups are worried over the possible fate of rural visiting nursing. "Will the board appropriate the money necessary to continue our work?" they ask one another.

During those years when Red Cross appeals brought almost an embarrassment of riches, much money was spent for rural public health nursing. For a number of years the work went on, each committee of "volunteers" in each chapter of each county in every state interpreting, according to its light, the instructions of the "Division."

Today many hundreds of these committees find Red Cross and other private funds unequal to the demands of their earlier program. In some communities it is financed by private philanthropy, and fluctuates in its effectiveness and efficiency as the funds of that private philanthropy rise or fall according to local conditions, and local interest. In other communities the nursing activity is financed jointly by the county board and a private group; and in many others the work which had gone on for some years has had to be discontinued entirely for lack of public support and the refusal of a county subsidy. One state, which at one time boasted nearly a hundred rural nurses, today is sure of only ten. Many of the others are going, or have their grips packed. Within a comparatively few months rural visiting nursing, a great public health enterprise, really vital to public welfare, has had to be abandoned in ever widening circles.

The reason for the discontinuance, in all probability but temporary, of rural nursing service is not hard to find. Elaborate programs of work were let down on rural communities by over-financed, war-born philanthropies. No effort, or only a very feeble one, was made to secure the support of the public for the work done. In fact, the very generous, almost carefree spending of money by some nursing activities committees has reacted not merely to their own undoing, but has also served to put

the stamp of extravagance on the type of work they were fostering, an unfortunate thing for rural health nursing.

For the future well being of rural public health nursing it seems wise to point out some sound methods of procedure for securing public support. How may a county be won over to the view of these excellent groups of women who are now meeting defeat? Have they been forgetting the lesson of that good axiom which all social welfare workers know?—"do not attempt to legislate too far ahead of public opinion."

Some Generalizations

The county board of supervisors is a body chosen to put into execution the will of the people of their county. Each individual member is chosen to represent the wishes of his constituents. Therefore, the county board may be expected to do what it feels to be the will of the majority of the constituents of each member. Strong personal appeals made to them by individuals who are directly promoting a project before them may interest members in a proposition but in the final vote they may be expected to act according to what they think the people back home want. It follows, therefore, that the first approach to a county board is through the influential taxpayers of each township and ward in the county. Any proposal may expect to be defeated before a county board, if the leading taxpayers are non-committal, unconvinced, or directly opposed.

The first duty of any legislative propagandist who wishes to build an honest, lasting foundation for any public welfare work is to provide a public opinion deeply favorable to his proposal. In other words, convince the taxpayer first, and be sure he is convinced. Most public health nurses are poor advertisers; and perhaps it is well that they are. Somebody should do it for them. Actual educational propaganda: literature, news-stories, lectures, meetings, resolutions, petitions, posters; all these influences should be brought to bear favorably for many months on the public mind. Such work is generally materially put forward through calling in professional social workers; workers skilled in arousing communities to consciousness of their needs.

An influential citizen from each important part of the county, where it is possible to find one already favorable to the plan, should be asked to be present at a specified meeting of the county board when the project is to be brought to the attention of the board for the first time. Important, favorably inclined members of the board should be told of the proposed visit of these people, and should be primed to ask the privilege of the floor for the spokesman of the group. This privilege will no doubt be granted without question, at a time specified.

The spokesman should outline briefly the work which has been carried on, either in the county or as reported from other places. Making clear the fact that he and other citizens of the county who have come with him feel that the general good of the county will be advanced if the proposed plan is adopted, he asks that the board consider appointing a committee from among its members to investigate the proposal for the board and report at a future meeting of the body. A member of the board, perhaps primed for the purpose, will then move the appointment of such a committee; and it is quite likely that the motion will carry.

One of the chief mistakes of the amateur welfare lobbyists who have been pushing rural nursing to the attention of county boards is haste. It is unwise to attempt to rush any legislative group to a vote on a question involving an expenditure of funds. Boards are justly suspicious of any group which does not seem to wish to give them all the time necessary for a thorough and far reaching investigation. One must be willing to "make haste slowly" with officials.

Boards of supervisors, like practically all other legislative bodies, feel that investigations conducted by members of their own group are more nearly accurate and reliable than are reports submitted by those urging a reform. The supervisors will feel a certain sense of protection against attack by unsympathetic constituents if they can point to a careful investigation by members of their own group as the basis for their action. Asking for a committee is an inoffensive way to get a plan before the group; and it gives each member an opportunity to sound his home people before he

is called to vote. Proceeding through a committee, further, is evidence of a desire to play fair. It disarms suspicion, and lets down bars of opposition. And anyway, legislative bodies like to investigate things.

With the appointing of the committee, the real work for the measure begins. Every member of the board should be visited in his home to learn his own attitude toward the proposal and to get his opinion of the attitude of his constituents. Soon it will be possible to tell what and where is the opposition to the project; and the available forces may be then directed intelligently toward breaking down the resistance.

Speakers, well informed, business-like, and to the point, should present all phases of the problem to every organized body that can be reached. The speakers should invite questions and discussion; and they should secure a favorable resolution from every group addressed. Their work should be supplemented, if necessary, with well written letters to influential individuals.

Hand bills explaining disputed or misrepresented points may be sent voters in the mails or may be sent home by school children; inexpensive posters telling salient facts, may be hung in windows and tacked up on barns and fences; and newspapers supplied with editorial and news matter. Through their columns human interest stories, as for instance, details of cases helped by a visiting nurse, should be widely used in a manner not offensive to the people involved.

In those centers where opposition seems still to persist, an actual, intensive demonstration of the work proposed for the county may be the means of winning support.

While the public campaign for support of the proposal is underway, the committee of the board of supervisors should, of course, have put at its disposal every source of available information on the work it is investigating.

Usually the professional social workers have a fund of technical information, including definite costs, which may be of much value to the committee and which may be presented in such form that it might be directly incorporated in the committee report. It sometimes happens that the committeemen will be pleased to see a tentative report drawn up for them in neat form, to use as they wish, covering the various phases of the problem under consideration.

It may be well to get some idea of the effect of the propaganda work on

the county before the board meets by arranging with the investigating committee of the board for a public hearing on the question. For such a hearing, people from all parts of the county who are favorable should be drawn in, resolutions should be unlimbered, and a speaker should be prepared to address the committee on the subject under consideration, letting it be known that he is acting spokesman for the assembled friends of the project.

A hearing like the one suggested may be considered a try-out of forces. If no opposition appears, perhaps it is a sign that the work in the county has been well done; and perhaps it means that the opponents are waiting for the meeting of the board.

As the time for the board meeting draws near, it is well to be sure of a majority vote before the board convenes. If a majority does not seem certain, it is wiser to maneuver to have the report delayed for a future meeting.

Canvass Board Before Vote

By canvassing the board just before the meeting one can be reasonably certain of how the vote will go. If the committee has been properly interested and convinced, the chairman will be anxious to see his report favorably acted on. Should he feel, and the canvass show, that the vote is not going to be favorable, he may be willing to go before the board with a request for more time.

One may wonder at this desire to avoid an open vote when defeat seems certain. Why not take the chance and try again for success later if necessary? The general feeling of experienced lobbyists may be expressed in the words of one who said: "As a general rule, a measure once defeated is a measure always defeated." This statement is not exactly true, but it demonstrates how seriously men of wide experience in legislative work regard a negative vote. It is infinitely harder to break down the evil precedent of a defeat than it is to work from zero up in a new field; and it is almost certain to be true that much more time will be lost in overcoming a defeat than will be required to win over the few hesitating members sufficient to give a favorable majority. Therefore, one should be willing to take a postponement rather than an open defeat if possible. And during the period of postponement work may be carried on to make up the votes needed to win.

The manner in which the affair is conducted before the board may in-

fluence the vote the measure will draw. Members of a board of supervisors, like most other groups of business men will appreciate any efforts made to conserve their time. Arrangements should be made in advance with the chairman of the board for a place on the calendar of the meeting, in the period allotted to discussion of the committee report. The chairman will no doubt first call upon the forces supporting the measure to open discussion.

A well organized hearing will have a "ring master," or leader who will perhaps speak first and then take command of the time allowed, by introducing other speakers, and all evidence to show his side of the case.

A good leader, in matters such as these, never overlooks the effect of the person who rises to protest. For some reason, one protest seems to carry more weight with boards than does a number of indorsements. Tax-payers in favor of a measure, usually do not trouble themselves to go before the board to say so. They must be urged to come out in support of their measure and frequently the means must be provided to get them there, if they are to be there at all. On the other hand, tax-payers opposed to a measure generally may be expected to appear to voice their disapproval. Therefore, the good leader gets favorable people to turn out for the meeting and at the proper time he introduces them, one by one, and informs the board that these people have come to give personal assurance of their whole-hearted support if the board will act favorably. The resolutions from clubs and societies in the county are introduced separately and read or indicated as being of favorable tenure, according to time allowed, and passed to the chairman of the board.

One form of opposition, which is very trying and difficult to handle, is the hidden, unexpressed, more or less personal suspicion of a certain type of board member. He sits, morose and glum, throughout the hearing. He had refused to express his convictions to workers previous to the meeting. All through the hearing he has had nothing to say. One feels he is certain to vote "no." His dark silence perhaps impresses some members of the board as suggesting a mysterious objection, better not mentioned; but, nevertheless, sufficient to require a "no." Five or six such men may drag enough following, or may dampen enthusiasm sufficiently to kill the measure.

It may not be possible to convince

such men with all the favorable evidence one might introduce but it may be possible to discredit them sufficiently to win over members who might otherwise follow their lead.

The leader's best effort should be directed toward getting the timid and morose gentlemen on their feet. To draw them out, he will do well to say in effect before he closes his talk:

Gentlemen, I believe you will agree with me when I say that we are gathered here, no one to seek his own ends; but everyone to seek the greatest good for our county. We may not all be agreed on the method for arriving at this greatest good. There may be men here, just as earnest, everyone of them, in their desire to serve the county well, as we are; men who do not feel, however, that this plan is the wise one. Those of us who are advocating this measure are anxious to do the right thing. We are not infallible; and we should be glad to get the viewpoint of everyone who sees this thing differently from us. Mr. Chairman, I wish to make it clear that no one supporting this measure will hold it against any man, if he rises to ask questions or to interpose objections. It seems to me that now is the time for us all to give every one of us the advantage of his own thought on this matter.

He may, then, very genially reach directly for his man, saying, "If I may, Mr. Chairman, I'd like to suggest that Mr. B— give us the benefit of his opinions. His thought means much to the people of the district he represents; and to us here."

The leader will perhaps, hold the floor while questions are asked, or even while unfavorable speeches are made, answering each man in a respectful, kindly tone; in that manner, and by direct appeal for any other dissenting opinions, encouraging the last hidden opponent to voice his disapproval. Usually the hidden objections are most easily answered, although their proponent may not be convinced. Such cases arise less out of an actual misunderstanding of the problem than they do out of a conservatism typical of some rural representatives. Getting them up on their feet to take part in the discussion, even if apparently unfavorable, is often the means of getting a "yes" from them in the vote.

The leader closes, saying: "Gentlemen, we lay before you what seems to be the wish of the people of this county. The matter is now left in your hands."

If all has been planned well, some chosen member of the board will be on his feet in a moment, moving the adoption of the proposal. The vote will be taken and perhaps you will have won.

Deaths in Early Infancy

THE reductions that have been made in infant mortality are due to a decrease in the number of deaths occurring after the first month. An article in the October issue of the *Statistical Bulletin* of the Metropolitan Life Insurance Company shows that little if anything has been done toward reducing the mortality that occurs during the first month of life. The article reads, in part, as follows:

The first month is by all odds the most hazardous in the entire span of human life. It is easier to survive a year at age sixty-five than for a new born infant to reach the age of one month. Each year in the United States, more than 105,000 babies die before they are a month old. This means that more than four per cent of all the two and one-half million live-born babies in the United States die in this early period. The stillbirths and the deaths of infants under one month account for the deaths of more than two hundred thousand children. These deaths are more in number than those from tuberculosis and all of the infectious diseases combined except influenza and pneumonia.

Infant mortality after the first month has been reduced one-half through such work as better feeding and care of babies. But the stillbirths and early infant deaths stay just about where they were fifteen or twenty years ago. The record of even the past five years shows no substantial improvement. In 1916, 4.3 per cent and in 1920, 4.2 per cent of the babies live-born in the United States Registration Area died before they reached the age of one month.

Yet, it is not true that nothing has been done or that the situation is without hope. The movement for the care of mothers in pregnancy, was organized not only to insure the safety of the mother, but also the survival of the baby during the first

month of life. It is interesting that, in large measure, this work has succeeded, although not to the degree hoped for. If more babies and mothers are to be saved, it will be necessary to develop a program which combines not only prenatal work but also provision for excellent confinement care. Often good prenatal work is ruined and rendered worthless by poor confinement care.

That something can be done to reduce this annual toll of deaths of very young children is evident from the facts for certain cities in the United States Birth Registration Area. In forty-seven cities of the United States during 1920, the infant mortality rates under one month of age varied from 33.6 per 1,000 births in Oakland, Calif., to 53.9 per 1,000 in Lowell, Mass., as shown in the foregoing table.

The wide range of the rates for the mortality of infants under one month of age suggests, first, that there is as yet no established minimum rate and second, that much of the mortality may be caused by so-called environmental factors which influence also the mortality of infants beyond one month of age. This latter point is suggested by the fact that in about half the cities the rate for infants under one month of age is high where there is also a high mortality for infants in the last eleven months of the first year of life. The casual agencies of much of the early infant mortality seem to be the ignorance of mothers regarding the hygiene of pregnancy and the care of babies, and the inexperience of so much of the obstetrical service available throughout the country.

Pessimism with regard to the saving of early infant life is entirely unwarranted by the facts for small groups which receive adequate obstetrical and nursing care throughout the puerperium. The appalling figures on the destruction of lives full of promise persist because, on a nationwide scale, practically nothing is being done that can be done.

INFANT MORTALITY RATES IN AMERICAN CITIES, 1920

	Deaths Per 1,000*				Deaths Per 1,000*		
	Total	Under 1 yr.	Over 1 mo.		Total	Under 1 yr.	Over 1 mo.
City				City			
Los Angeles, Calif.....	71.3	35.7	37.0	Albany, N. Y.....	76.9	44.1	35.3
Oakland, Calif.....	70.7	33.6	38.5	Buffalo, N. Y.....	102.9	50.2	55.5
San Francisco, Calif.....	61.8	33.9	28.9	New York, N. Y.....	85.2	35.0	52.0
Bridgeport, Conn.....	91.9	44.5	49.6	Rochester, N. Y.....	84.4	47.2	39.1
Hartford, Conn.....	98.7	53.4	47.9	Syracuse, N. Y.....	104.7	49.2	58.3
New Haven, Conn.....	87.0	37.6	51.4	Yonkers, N. Y.....	88.6	49.9	46.8
Washington, D. C.....	91.0	47.7	45.5	Akron, Ohio.....	93.8	45.2	49.4
Indianapolis, Ind.....	91.0	47.9	45.2	Cincinnati, Ohio.....	82.4	39.9	44.2
Kansas City, Kan.....	107.7	45.2	65.5	Cleveland, Ohio.....	87.3	41.1	48.2
Louisville, Ky.....	86.5	41.6	46.8	Columbus, Ohio.....	96.4	45.7	63.1
Baltimore, Md.....	105.9	44.4	64.3	Dayton, Ohio.....	84.7	45.3	41.3
Boston, Mass.....	100.6	45.6	67.7	Toledo, Ohio.....	88.6	43.1	47.6
Cambridge, Mass.....	95.9	44.5	53.9	Youngstown, Ohio.....	94.8	41.7	55.4
Fall River, Mass.....	129.5	47.2	86.4	Portland, Ore.....	59.6	38.3	22.2
Lowell, Mass.....	134.7	53.9	85.5	Philadelphia, Pa.....	97.6	38.2	59.9
New Bedford, Mass.....	122.3	40.2	86.6	Pittsburgh, Pa.....	111.3	49.0	65.6
Springfield, Mass.....	84.8	46.2	40.5	Reading, Pa.....	99.3	49.7	62.3
Worcester, Mass.....	85.3	43.7	45.5	Seranton, Pa.....	119.0	53.8	69.0
Detroit, Mich.....	104.2	50.7	56.3	Salt Lake City, Utah.....	84.5	37.9	35.5
Grand Rapids, Mich.....	99.1	47.6	54.0	Norfolk, Va.....	99.6	47.2	55.0
Minneapolis, Minn.....	65.3	41.3	25.1	Richmond, Va.....	114.1	45.5	71.9
St. Paul, Minn.....	73.0	46.4	28.0	Seattle, Wash.....	56.6	35.2	22.2
Omaha, Neb.....	92.0	42.5	51.6	Spokane, Wash.....	71.1	38.8	33.6
				Milwaukee, Wis.....	84.1	45.7	47.6

*Deaths per 1,000 births for "total under 1 year" and "under 1 month." Deaths per 1,000 survivors at age of 1 month for "over 1 month."

Modern Medical Service On An Ocean Liner

A SHIP'S doctor has the most unique practice in the world.

All nationalities, all classes, and nearly all creeds seek his advice and aid. He is at one moment a physician, at the next a surgeon, and not infrequently is he called upon to act as a dentist. The ship's doctor on a modern trans-Atlantic liner may have as many as three or four thousand people who in sickness or in accident look to him for aid. He is usually the sole recourse of the passengers and crew. In order to be a good ship's doctor he must possess an extra supply of quick and accurate judgment. He must be versatile for his cases cannot be referred to specialists; the facilities of the great city hospital with its staff of physicians and surgeons are beyond his reach. At one moment he may treat a duke or a duchess and at the next an Armenian peasant. He may extract a tooth when the ocean is as calm as a mountain lake or in the midst of a terrific storm perform a delicate major operation. His life is not devoid of variety and is allotted a fair proportion of thrills.

There has been a great advance from the one room allotted the ship's doctor in the past to the modern ship's hospital. In those days the patients waited in the passage way outside the stateroom that served the doctor as both living room and office,

and any place where the doctor and patient chanced to meet was a consultation room. Now the vessels of progressive lines contain one or more surgeries, an adequate number of hospital beds, dispensary, waiting room and consultation room. Facilities are condensed for space is never wasted on the modern steamship, but they are complete, up-to-date, and well adapted to the service required.

In order to give readers of *THE NATION'S HEALTH* a conception of the equipment and services that progressive passenger lines now provide for their patrons, an interview was secured with J. C. Beaumont, chief surgeon of the S. S. Majestic of The White Star Line. A new and excellent liner throughout, the Majestic's medical services and equipment are of an equally high standard of excellence.

Dental Equipment Complete

The staff is composed of Chief Surgeon Beaumont, Assistant Surgeon Jones, two trained hospital attendants for day duty, one trained hospital attendant for night duty, and two trained hospital female nurses. One of the latter is certified in midwifery and her special services are available at any moment of the day or night for any urgent case.

The major portion of the space devoted to medical services is in the forward

ward part of the ship and though approximately under the bridge, it is more than 280 feet from the bow, an advantageous position since this is the steadiest part of the vessel. Some little distance above the water-line and on the port side is the main surgery. The walls are covered with instrument cases and lockers that provide ample storage for supplies. The operating table and all appliances are modern and of the best type and construction. A dental chair and complete dental outfit is also provided. In calm weather ample light for the application of dressings and the like is supplied from large port holes. Directly opposite the surgery, on the starboard side of the ship is the hospital. Easy and direct communication between the surgery and the hospital is provided by a passage way running across the ship from the surgery to the forward part of the hospital.

The hospital is in thirteen sections and is equipped with a total of sixty beds. Twelve of these sections containing 48 beds are devoted to general cases. The isolation section, 12 beds, for the treatment of communicable diseases affords complete isolation, i.e., in conformity with the strict English Board of Trade Regulations it is completely separated from the sections where the general cases are cared for and is provided with an uptake draught that is carried aloft and over the side of the ship. Bath room facilities are ample and linen closets commodious and well stocked. A second surgery that is practically a duplication of the one already described is located amidships aft. Directly aft of the main surgery is the surgeon's living room and office, a dispensary with an extensive and carefully selected stock of drugs, and a large and beautifully finished waiting room for the patients opening into the passageway leading forward from the passengers' quarters.

First and second class passengers are seen at any and every time by Dr. Beaumont. They come to the doctor's waiting room and are received for consultation in his office or when need arises they are visited in their staterooms. The third class passengers are attended by Dr. Jones in the large surgery aft. The crew are seen in the forward surgery by the assistant surgeon. By means of this division all clashing of patients is avoided.

The out-patient department is open



View of one of the thirteen sections of the hospital on the S. S. Majestic, the world's largest ship.



View of the main surgery on the *Majestic*, showing Dr. Beaumont operating

twice a day, in the morning at nine and in the evening at 5:30. During the travelling season the number of visits and consultation per day varies from forty to seventy.

Operation on High Seas

During the five years that Dr. Beaumont was surgeon on the *Olympic* he performed 156 operations under general anesthesia and since the *Majestic* was commissioned in May, 15 more operations have been performed. The most remarkable feature is, in view of the many newspaper stories and communications to medical journals relative to the difficulties of operations at sea, that at no time has the ship been stopped or even slowed down during any operation. Dr. Beaumont stated that the navigating officers were never told when an operation was to be performed and usually learned of it after its completion when the information became a matter of ship's news. We believe this to be a very unusual record and it surely differs from the current stories of the necessity for stopping vessels during surgical operation and pouring oil on the troubled seas.

In a later conversation with one of the officials of the line this record was mentioned and the following story was told. A little over a year ago this official was crossing on the *Olympic* on which Dr. Beaumont was surgeon at the time. A severe hurricane was encountered, so severe in fact that even the monstrous *Olympic* was in

the words of the narrator "knocked down." A heavy steel bulkhead door broke loose and fatally injured one third class passenger and crushed the foot of another. Dr. Beaumont wanted to amputate but the immigrant understood little English and could not be impressed with the seriousness of his condition. Blood poisoning set in immediately and a few days later while the hurricane was but little abated it was seen that an amputation was imperative. The

doctor, putting his hand on the leg above the knee delivered an ultimatum, "I cut, you live. No cut, you die." This time the injured man was convinced and with the ship rolling and pitching in the storm the leg was amputated with speed equal to that attained on a stationary table that is so often considered essential. Four days later the patient was taken ashore. The narrator concluded, "Probably Dr. Beaumont didn't tell you that." He didn't. He gave the impression that the difficulties under which he practiced were no difficulties at all.

Trouble Only Once

During these nineteen years, Dr. Beaumont stated that only once had any operation given him any trouble. In this case some splinters of steel were embedded in a man's eyeball. The doctor had considerable difficulty in extracting them because of the roughness of the sea and though for a time he thought it might be necessary to ask that the ship be slowed down he finally succeeded in removing the splinters from the eye without any change in the ship's course or headway and the patient had an uneventful recovery.

The *Majestic* is an extremely steady ship and cases of seasickness are at a minimum. Dr. Beaumont said that in seventeen crossings that he has made in her since she was put in service he has had but two cases that have given him even a passing moment of worry.



Dr. Beaumont acting as ship's dentist, in the forward surgery.

Digest of Sanitary and Hygienic Advance

DUE to the increasing requirements imposed by the quarantine laws of the United States and other countries, especially with reference to rodents, the Public Health Service has felt the need for further study of the subject of ship fumigation. For this reason the Surgeon General convened a board on March 1, 1922, consisting of a medical officer, a chemist, and an engineer to inquire into the subject and make recommendations. The preliminary report of these investigators (*Pub. Health Rep.* xxxvii, No. 44, p. 2744, Nov. 3, 1922), states that the two main divisions of the work are: (1), the investigation of the various gases that seem to offer advantages in ship fumigation, and experimentation regarding the production of these gases; (2) the investigation of natural ventilation and in addition the artificial means of ventilation of ships after fumigation.

In the United States, hydrocyanic acid gas and sulphur dioxide, have been largely used for ship fumigation. Each of these gases has certain advantages and disadvantages not possessed by the other. Neither is ideal. Sulphur dioxide, while fairly efficient and giving warning by its odor in time to allow the escape of any person within the quarters where it is being used, has the disadvantage of being costly, diffusing poorly, is harmful to most tissues, articles of clothing, foodstuffs, seeds, etc., and from a financial standpoint, the requisite length of time for exposure—from 5 to 12 hours—is extremely important to the ship-owners. Hydrocyanic acid gas has the advantages of being very toxic in the percentage in which the gas is used, is less costly than sulphur dioxide, requires only a short period of exposure, and does not affect foodstuffs, fabrics, clothing etc. The main objection to its use is that, being practically odorless and nonirritating, numerous fatalities have resulted. From a study of these two gases the requirement for an ideal ship's fumigant were found to be: high toxicity; easy detection, by the senses, in sub-lethal concentration; harmlessness to foods; efficient penetration; nonpersistence; reasonably low cost; no fire or explosive hazard; and ease of manipulation. It should also be non-corrosive to metals and it must at the same time be harmless to fabrics.

Special attention was given in the

investigations to the gases containing the cyanogen molecule, as it appeared in a review of the literature that a number of these gases not only possess the toxic effect of hydrocyanic acid, but were also tear gases. A mixture of cyanogen chlorid and hydrocyanic acid gas proved the most satisfactory of the various gases and combinations of gases tested. This was prepared by adding sodium cyanid and sodium chlorate to hydrochloric acid. Talc may be used with this mixture to reduce the fire and explosive hazard. A tentative formula which appears to give the most satisfactory results per 1,000 cubic feet is:

- 4 ounces powdered sodium cyanid;
- 3 ounces sodium chlorate;
- 2 ounces talc;
- 17 fluid ounces commercial hydrochloric acid, sp. gr. 1.15 to 1.20;
- 17 ounces water.

The talc and the sodium chlorate were mixed first, then the cyanid was added and mixed, and the bag containing the mixture dropped into dilute acid. The composition of the lethal mixture expressed in milligrams per liter is as follows:

Cyanogen chlorid	0.9407
Hydrocyanic acid gas.....	0.3269

This mixture fulfils the following requirements:

- (1) *Toxicity:* High toxicity with rodents, bats, roaches, bedbugs. (The amount required for lice requires further experimentation.)
- (2) *Detection properties:* Intense laceration when lethal dose used. In 1/8 lethal dose (having no harmful effect on rats after exposure of one hour) laceration was still extreme.
- (3) No effect on foods, tobacco, fabrics, leather, and no corrosive action on metals (with the possible exception of nickel).
- (4) Efficient penetration qualities.
- (5) Non persistence: Gas is not more persistent than hydrocyanic acid gas, probably less so.
- (6) Reasonably low cost per 1,000 cubic feet. Cyanogen chlorid mixture, \$0.088; hydrocyanic acid gas, \$0.081.
- (7) Fire and explosive hazard at a minimum.

Through the courtesy of the Chemical Warfare Service this work was carried on at the Edgewood Arsenal. As soon as the ventilation studies are finished, it is expected to present both the chemical and ventilation studies as a service publication. Corrections in the preliminary report are recorded in a later issue. (*Pub. Health Rep.*, vol. xxxvii, No. 47, Nov. 24, 1922, p. 2904.)

Discharge of Sanitary Sewers

In studying the discharge of sewers in Phoenix, Ariz., Cotten found (*Eng. News-Record*, lxxxix, No. 20, p. 837, Nov. 16, 1922) by the use of specially constructed floats that the actual discharge of the sewers under consideration was greater than their rated capacity as calculated from Kutter's formula. The values so derived indicated that the actual value of *n*, the coefficient of roughness, is somewhat less than 0.013 in what the author calls "an ordinarily well constructed vitrified clay sewer." Another point of interest brought out in the study was that the maximum rate of sewage discharge was practically constant throughout the year, though the total discharge varies, increasing in the summer. The maximum residential rate of discharge occurred on Sunday, about noon, and was 17 per cent greater than the maximum for any other day of the week.

Seattle, Wash., has scrapped three Meldrum destructors and now fills land at sixteen places in the city with garbage, ashes, and refuse, at a cost of thirty cents a ton. There is practically no nuisance and the made land has been approved by the city building department as suitable for light structures. (*Eng. News-Record*, lxxxix, No. 21, Nov. 23, 1922, p. 876.)

Sulpharsphenamin

A new arsenical for use in the treatment and control of syphilis which appears from laboratory findings and some preliminary clinical data to possess certain definite advantages over the arsenicals in use at the present time, differs in its chemical structure from nearsphenamin in that it has a side chain with one more atom of oxygen. Sulpharsphenamin is prepared from arsphenamine, formaldehyd, and sodium bisulphite. Voegtlin, Johnson, and Dyer conclude from the experimental findings (*Pub. Health Rep.*, xxxvii, No. 45, p. 2783, Nov. 10, 1922) that this new drug has certain definite advantages over nearsphenamin, as (1) ease of manufacture, (2) great stability of the drug in dry form and watery solutions, (3) constancy of toxic and parasitical action of different lots, and (4) suitability for hypodermic administration. It will be necessary to give this drug an

exhaustive trial as to its curative powers in human syphilis.

The Oral Route in Immunization

Nicolle and Conseil (*Ann. de l'Inst. Pasteur*, 1922, xxvi, 8) conclude that the method of Besredka is an efficacious means of immunization against Malta fever and Shiga dysentery. While the total number of experiments is not large, they hold out considerable promise of an improved method of prophylaxis against these diseases.

The Economics of Public Health

Freemantle (*Brit. Med. Jour.*, 3217, Aug. 26, 1922, p. 338 *et seq*) discusses the material loss occasioned by physical sickness and disablement and the material advantages that may be obtained, or have been obtained, from improvements in the public health and concludes that the ascertainable cost of sickness and disablement to the community in England and Wales amounts to no less than £150,000,000 (about six and a half million dollars) per annum. Judging from the estimate of £94,000,000 (\$423,000,000), Freemantle believes that the estimated loss of £150,000,000 from all forms of sickness to be grossly underestimated. The public health services of England and Wales cost many millions a year but during the course of the public health movement in the past sixty years the improvement in health has given a very large possible increase in output, which, reckoned on the basis of lives saved and the average wages of an agricultural laborer sixty years ago, works out at £62,000,000 (\$279,000,000) a year. Reckoned from the increased expectation of life, it amounts to £200,000,000 (\$900,000,000) a year, many times the amount expended on maintaining the public health services.

Experiments on the fertilizing value of activated sludge carried on by H. D. Brown show (*Eng. News-Record*, lxxxix, No. 21, p. 885, Nov. 23, 1922) that the nitrogen in activated sludge was readily available for plant food and was in assimilable form; that the sludge was very beneficial when applied immediately before planting; that it gave a rapid early growth which exceeded that of other commercial fertilizers used; and that the maturity of the plant was hastened by sludge, so that the value was

greater because it could be marketed earlier.

Re-test of Old Index of Nourishment

Bornhardt's index was designed as a test for fitness for military service, the original article being published in the *Petersburger medizinische Wochenschrift* in 1886. Guttman has recently made a study (*Arch.f.Kinderh.*, lxxii, No. 1, Sept. 9, 1922, p. 23) (*J.A.M.A.*, vol. 79, No. 21, Nov. 18, 1922, p. 1805) comparing this system with those suggested by Pignet, Pirquet, Rohrer, and Livi. Guttman has recorded the various measurement from the first to the thirtieth year of life of 10,867 individuals and applied these to the various systems under consideration. He found that from 52.5 to 78 per cent of the objective findings failed to conform to the theoretical indices with all except the Bornhardt index. The latter conformed to the facts in all but two or three cases per thousand. The formula is $G - B.L: 240$, in which G = net weight; B = chest measure; L = height (metric system). The formula is thus the weight minus the middle chest measure multiplied by the height without shoes, and divided by 240. The author states that this index is as free from errors as possible; that it can be easily applied in all countries; that it is a useful check on other methods; and that it is not an index of the constitution or potential energy, but solely an index of the state of nourishment.

Cecil and Steffen report (*Pub. Health Rep.*, xxxvii, No. 44, Nov. 3, 1922, p. 2735) that the intratracheal inoculation of monkeys with three doses of pneumococcus Type I vaccine renders them completely immune against experimental pneumococcus Type I pneumonia. The mere spraying of the throat with the vaccine was not satisfactory, probably due to the fact that the monkey, by closing off the nasopharynx, prevented the vaporized vaccine from entering the trachea. The demonstration that there exists little or no protective substance in the blood serum of the monkeys indicates that the immunity is probably cellular in character.

Compilations made by the Bureau of the Census indicate that 1921 was a remarkably healthful year. The crude death rate from all causes in the registration area was 11.6 per 1,000 population. The figure for 1920 was 13.1.

Announcement of provisional figures for the first six months of 1922 indicate higher death rates than for the corresponding six months of 1921. For the states compared the death rate for the six months was 12.6 against 12 for the first six months of 1921.

A similar comparison of the birth rates indicate a lower birth rate for the first six months of 1922, 22.7, than for the corresponding six months of 1921 when the rate was 24.8.

Relation of Colloid Silica to Infection

In the absence of Cummings, Tyler demonstrated at the meeting of the Cardiff Medical Society, November 7, exhibits showing that silica in colloidal form possessed a marked power of inhibiting the action of complement, thus preventing the lysis and destruction of bacteria by blood fluids. One series of preparations shown had been prepared by adding to serial dilutions of typhoid broth culture an equal volume of sterilized normal saline. From this mixture a measured volume had been added to an equal amount of fresh normal human blood, the preparations then having been placed in the incubator at 37 degrees Centigrade for an hour and forty minutes. At the end of that time the contents of the tubes had been transferred to the surface of trypsin agar slopes and incubated over night. Few colonies had developed on the agar showing that the bacilli had been killed by the lytic action of the blood. The next series of preparations shown had been prepared from a series of similar dilutions of typhoid broth that were mixed with equal volumes of silica colloid. The trypsin agar slopes made from these cultures were covered with colonies of typhoid bacilli showing that in spite of the lytic substances of the human blood the bacteria had been preserved from destruction during the period of one hour and forty minutes contact at blood temperature.

That this prevention of lysis by silica colloid was due to interference with the complement was shown by another series of tubes in which the complete inhibition of lysis of sensitized red blood corpuscles by the presence of silica colloid was demonstrated.

These observations may have bearing on the action of silica in leading to the establishment of bacterial diseases in the tissues, while the inhibition of cytolytic activity noted may throw light on the observation of Mavrogordato, that macrophage cells

containing ingested silica were protected from autolysis and digestion in the lymph spaces. (*Lancet*, vol. II, No. 5177, p. 1072, Nov. 18, 1922.)

Danger in the Use of Carbon Tetrachlorid

Observations by Smillie and Pessoa that dogs suffered definite fatty degeneration of the liver and kidneys following the administration of carbon tetrachlorid led them to caution against the indiscriminate use of this drug on humans. Docherty and Burgess (*Brit. Med. Jour.*, No. 3228, p. 907, Nov. 11, 1922) report similar effects on men.

With the approval of the superintendent of prisons for Ceylon and the personal consent of the prisoners, two condemned men were treated with 5 c.c. of carbon tetrachlorid and one with 8 c.c. in two doses of 5 c.c. and 3 c.c. Autopsies revealed lesions in the liver in two cases. The authors conclude that it seems inadvisable to prescribe a 5 c.c. dose with purgative, let alone without. They suggest a 3 c.c. as a safe maximum, since this has been given to a number of patients in Ceylon without discomfort though no autopsy has been performed on an individual so treated to ascertain if liver or kidneys were injured.

These findings differ from those of Leach (*J.A.M.A.*, lxxviii, No. 23, p. 1789, June 10, 1922) who gave a condemned prisoner a 10 c.c. dose and a 2 c.c. dose a week later. From the autopsy performed after the execution each reported normal spleen, liver, and kidneys.

Tuberculosis and Vital Capacity

An attempt has been made by Myers (*Am. Rev. Tb.*, vi, No. 8, p. 708, Oct., 1922) to correlate the symptoms, vital capacity reading, physical and x-ray findings in a group of 619 cases examined for tuberculosis. In 149 patients in whom physical examination revealed no evidence of diseases the average vital capacity was found to be approximately 103.0 per cent. In 100 cases suffering from chronic bronchitis the average vital capacity was slightly higher than 103.0 per cent. Twenty-nine cases with pleurisy showed an average vital capacity reduced to 92.0 per cent. All groups of cases with evidence of parenchymatous lesions showed reduction in the average vital capacity. The average vital capacity was found to decrease with the extent of disease revealed by

x-ray findings and physical signs. There was also a decrease in the average vital capacity with increase of symptoms.

Another study by the same author (*Arch. Int. Med.*, xxx, No. 5, Nov. 15, 1922) states that thirty cases in which stereoentgenograms showed no evidence of disease, the mean vital capacity was 102 per cent of normal. In 39 cases of peribronchial tuberculosis the average vital capacity was 97 per cent. When pulmonary cavities were revealed by Roentgen rays the mean vital capacity was 64 per cent. Spontaneous or artificial pneumothorax cases were found to have a mean vital capacity of 49 per cent. In the majority of cases the vital capacity was found to be reduced in proportion to the extent of involvement.

Ratner states (*Arch. Pediat.*, xxxix, 11, p. 762, November, 1922) that rabbit hair which is found in pillows, mattresses, comforters, felt hats, factory dust, toys, and clothing should be placed second to horse hair as a causative agent on the keratin group of asthmas.

Statistics on the Prevalence of Dengue

The very incomplete statistics available (*Pub. Health Rep.*, xxxvii, No. 48, p. 2941, Dec. 1, 1922) show that seven states had nearly thirty thousand reported cases of dengue fever during the summer and autumn of 1921. Texas reported the most, with Louisiana, Georgia, Florida, and Mississippi ranking in the order named.

The death rate from cancer and other malignant tumors in the registration area (exclusive of Hawaii) was in 1917, 82.0 per 100,000 population; in 1918, 80.3; in 1919, 80.5; in 1920, 83.4; and in 1921, 86.0. (*Pub. Health Rep.*, xxxvii, No. 47, p. 2899, Nov. 24, 1922.)

A series of eight essays on vital statistics by Falk (*Pub. Health Nurse*, March, April, May, June, July, Aug., 1922) present in a concise and lucid manner the sources, procedures, and results of statistical inquiries, together with cautions which the untrained statistician must observe.

Test of Commercial Vitamin Preparations

The efficacy of twenty-one different commercial vitamin preparations has been tested by Bailey, Cannon, Fisher (*Conn. Agr. Exp. Sta., Bulletin* 240,

August, 1922) by comparing the growth of young albino rats with the growth of control rats fed with an equal weight of dry brewers' yeast.

Chemical analyses of the preparations showed that "apparently many manufacturers are not entirely convinced of the efficacy of their vitamin preparations unassisted and have therefore added various medicaments of established reputation in therapeutics for good measure or to insure a reaction of some description." Such dilution offers an explanation for the observed impotency of some of the preparations. The potency of the several products examined was judged primarily from the effect on the growth curves of rats of daily doses of one hundred milligrams compared with a like quantity of brewer's yeast under like conditions. Products that proved effective with this dosage were tried with lesser amounts; those effective in fifty milligram doses were again reduced to twenty-five milligrams.

Three of the twenty-one preparations tested brought the experimental animals to their normal weight within the duration of the period of the experiment; four preparations produced growth closely approximating that secured in the controls; five produced inconsistent or indifferent growth; and the others failed conspicuously in all trials.

The *Schweizerische medizinische Wochenschrift* for October 19, 1922, states in regard to a law relating to tuberculosis now being drafted in Switzerland, that the outstanding and to a certain extent novel feature of this law is its explicit admission that if the liberty of the tuberculous individual is to be curtailed for the benefit of the public, it is incumbent on the public to compensate the individual. (*Lancet*, vol. II, No. 5177, Nov. 18, 1922.)

Pathometric Index Number

A methodological paper by Pearl (*Bull. Johns Hopkins Hosp.*, xxxiii, 381, p. 406, Nov. 22, 1922) is a preliminary account of an attempt to devise a method of obtaining a pathometric index number, which has for its purpose the obtaining of a single numerical expression of the gravity of the whole pathological picture disclosed by the lesions discovered at the autopsy. The index is derived from a formula which employs weighted scores of (1) the magnitude and gravity of the lesion; (2) the organ or organ system in which the le-

sion occurs; (3) the etiological factor involved in the production of the lesion; and (4) the age of the person.

Syphilis in Pregnancy

Realizing that syphilis is a great causative factor in premature deliveries and macerated feti, Welz and Van Nest have conducted an investigation (*J. Obst. and Gyn.*, iv, 4, Aug. 1922) through the prenatal clinic of the Detroit department of health. The study covers a total of 1,467 new prenatal cases of which 47.6 per cent were white and 52.4 per cent were colored. Of the total 13.1 per cent were diagnosed as syphilitic. Among the white patients 5.7 per cent were syphilitic and among the colored 19.3 per cent. Of the total of 193 patients having syphilis, 147 were cared for through pregnancy. About 85 per cent of the mothers having syphilis were diagnosed as latent syphilis. It was not through complaint but through routine examination that these were discovered. Since syphilis is transmitted through the placenta to the fetus after a period of about three months it is evident that early treatment is essential. It is questionable whether antisyphilitic treatment through the mother can be of any value to the fetus in utero when the vital organs of the fetus are severely involved, but it should be attempted even at the end of pregnancy in hope of securing a controlled case which can be further cared for after birth.

The injection of neosalvarsan was not found to produce miscarriages or premature deliveries. With a small initial dosage, 0.3 gm., and an increase to 0.45 gm. to 0.6 gm. in weekly injections, no harm results.

Dried Milk Powder in Infant Feeding

The scarcity and high price of milk in some portions of the country together with the abundance and waste of milk in regions lacking in adequate transportation facilities make the use of dried milk powder highly desirable. Objection to the wider use of such products has often been made on the ground that its nutritive value was inadequate. Clark and Collins (*Pub Health, Rep.* Oct 6, 1922) report a study carried on among infants in the city of Boston which indicates that dried-milk powders and their remade products are safe for infant feeding. The conclusions are based on observations and records of 241 babies under six months of age when placed on diet, and no in-

fant was included in the final tabulation unless there was a record of weighings for at least four weeks. The average gain per baby per day in Group I (fed on grade "A" milk) was 0.629 ounce; in Group II (fed on whole milk powder reconstituted in their homes) the gain was 0.880; and in Group III (fed on skimmed-milk powder and sweet butter fat emulsified in a commercial dairy) the average gain was 0.713. The authors state that while gain in weight alone may not be considered sufficient evidence on which to base final conclusions, it offers the most reliable index for mathematical demonstration.

The infants in Group II gained in weight more rapidly than did those in Group I, and their feces contained less gram positive bacilli. A study of the total number of microorganisms in the stools shows the lowest count for breastfed babies with Group II (receiving whole milk powder) second. Fresh supplies of the three types of milk were compared for total bacterial count. Whole-milk powder, when made up gave a count of 1,600 per c.c., while the Grade "A" milk was never less than 6,000 per c.c., averaged 32,000 per c.c., and in hot weather often ran as high as 200,000 per c.c.

It was assumed in this study that the preparation of dried-milk powder reduced or destroyed the antiscorbutic value. The majority of the infants were fed orange juice. Thirteen infants failed for one reason or another to get the orange juice and one in Group I and one in Group III developed symptoms of scurvy but responded promptly to treatment. In regard to the prevention of rickets the writers state that as far as can be at present determined, neither dried nor fresh milk can be considered a determining factor. The short period covered by the report made it impossible to draw any conclusion as to the effect of the diet on a number of infants included in this study that undoubtedly had previously a slight degree of rickets.

This study appears to have been very carefully conducted, is presented with great detail of statistical analysis, and indicated no nutritional or bacteriological objection to the powder and remade products that were used.

A New Method of Water Filtration

A method of purification that gives excellent color removal when used with soft, highly colored water has

been devised by H. W. Clark, Chief Chemist of the Massachusetts Department of Health, and tested at the Lawrence Experiment Station. Slow sand filters are from 25 to 30 per cent efficient in removing color from the water of the Merrimac River. Coagulation and rapid sand filtration when applied to such water tends to increase the corrosive properties. The process is of particular interest where the presence of organic matter is such as to promote undue bacterial growth.

The new process consists essentially in loading the sand of a slow sand filter with the ordinary coagulants used in mechanical filtration and operating the filter at slightly more than the usual slow sand filter rates, or about five or six million gallons per acre per day. Mr. Clark states in the *Engineering News-Record* that eleven filters have been operated to date, some of them for as long a period as five years. During such a period scraping is required not more than twice and treatment with weak caustic soda for the removal of the coloring matter held by the aluminum hydroxide is required twenty-four times. This latter treatment removes from the sand the gelatinous organic matter so necessary for the retention of bacteria and therefore reduces bacterial efficiency, but final treatment with a small amount of chlorin results in a potable water. Color removal approximates 90 per cent. The cost of mechanical filtration for the water tested was six to seven dollars per million gallons while the cost of aluminum sulphate for the new method has been about fifty-five cents per million gallons.

This method of treatment is particularly applicable to stored waters of high color, the improvement of which physically is of more moment than the reduction of bacteria.

A total of \$1,209,915 is provided for in the annual appropriation bill of the Treasury for 1924 health measures. The bill includes: \$45,000 for maintenance of a hygienic laboratory; \$488,000 for quarantine service; \$335,042 for prevention of epidemics; \$23,000 for interstate quarantine service; \$50,000 for rural sanitation; \$41,500 for regulation of the production of serums and toxins; \$227,353 for maintenance of division of venereal diseases. Appropriations were also contained in the bill to cover the expenses of medical examination by the U. S. Public health service of immigrants and aliens before they are permitted to enter the principal ports of the United States.

THE NATION'S HEALTH

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The Greatest Frenchman

ON DECEMBER 27, 1822, in the home of an humble tanner of Dôle, was born the man who accomplished more to lift the burden of human suffering than any other single individual in the history of the race. Some years ago a popular vote was taken by a Paris newspaper as to the greatest Frenchman of all time; and it was not Louis Pasteur who was honored, but French discrimination which was justified, when Pasteur was preferred over Napoleon by a large majority.

Four major fields of scientific activity owe their foundations to the researches of Pasteur. Industrial biology with its increasingly varied applications in the arts and industries is based upon his studies of spontaneous generation and of the fermentations of wine and beer. Modern sanitation on the one hand, and modern surgery on the other, rest upon the same sure foundation of biogenesis and upon its application in the study of the diseases of silkworms. The complex science of serology is the outgrowth of what Pasteur discovered in his investigation of chicken cholera, anthrax, and rabies.

It is reasonably certain that these same discoveries would ultimately have been made by other investigators, if they had not been made by Pasteur. The invention of the achromatic objec-

tive was certain to result in the conquest of the realm of "the infinitely little." How many years would have been lost in traveling this road, which Pasteur followed so rapidly and so surely, it is impossible to conjecture. As Pasteur said of certain biological investigators of his time, "They do not know how to experiment; it is not an easy art; it demands besides certain natural qualities, a long practice which naturalists have not generally acquired nowadays." Pasteur had those "natural qualities"—of ardor, of patience, and above all of rigorous scientific caution—and he had the sound training of the physical chemist. He spared to science decades of floundering error and he saved to the world hundreds of thousands of lives. The message which he delivered at the dedication of the Pasteur Institute November 14, 1888, embodies the secret of his power, and it is a message still as pregnant with meaning as on the day the words were spoken:

Worship the spirit of criticism. If reduced to itself, it is not an awakener of ideas or a stimulant to great things, but, without it, everything is fallible; it always has the last word. What I am now asking you, and you will ask of your pupils later on, is what is most difficult to an inventor.

It is indeed a hard task, when you believe you have found an important scientific fact and are feverishly anxious to publish it, to constrain yourself for days, weeks, years sometimes, to fight with yourself, to try and ruin your own experiments and only to proclaim your discovery after having exhausted all contrary hypotheses.

But when, after so many efforts, you have at last arrived at a certainty, your joy is one of the greatest which can be felt by a human soul.

The Progress of the Year in Public Health

THE most encouraging feature of the year 1922, in the application of fundamental scientific advance to the promotion of the public health, has been the development of Schick testing and toxin-antitoxin immunization against diphtheria¹. In New York and in many other cities the Schick testing of school children has been carried out on so extensive a scale as to warrant the belief that diphtheria among children of school age will shortly be in a fair way of being controlled. Meanwhile, however, there has been a growing recognition of the fact that the war against diphtheria, if it is to be most effective, must begin before the school period, and Dr. Park's success in preparing a dilute toxin-antitoxin mixture of full protective potency, but free from any tendency to produce unfavorable reactions, clears the ways for a broader campaign of general immunization of infants at the end of the first year of life.

In the field of venereal disease control the use of the Kahn precipitation test for the diagnosis of syphilis² appears to constitute an advance in laboratory technic which is of substantial importance; while the reports of the U. S. Hygienic Laboratories³ on the use of sulpharsphenamin suggest that this drug is likely to prove of definite value in the treatment clinic.

On the more theoretical side of bacteriology the most interesting new work has perhaps been that which deals with the Twort-d'Herelle phenomenon. An English translation of D'Herelle's book has just appeared⁴ and recent American work⁵ fully confirms the reality of the bacteriophage phenomena, whether the explanation is to be sought in the assumption of a living ultramicroscopic virus or of a process of self-propagating autolysis.

Studies on the etiology of rickets from the laboratories of Hess⁶ and of Park⁷ constitute a fas-

cinating chapter in the philosophy of disease. They illustrate better than almost any other researches one could name the complexity of pathological processes by demonstrating that a disease intimately related to a lack of salt balance can be cured by two such apparently diverse agents as cod liver oil and sunlight; and they give us for the first time a definite experimental basis for the age-long therapeutic cult of Apollo.

In the general field of maternity and infant hygiene there is a growing tendency to emphasize the importance of prenatal and obstetrical service and the practical work initiated all over the United States, supported or inspired by the Shepard-Towner Act⁸, promises to yield far reaching results. The importance of a safe and cheap milk supply in promoting the success of our child hygiene program is a fundamental one, and recent studies on the value of dried milk for infant feeding⁹ indicate that the development of the use of this product is likely to furnish the solution of one of the most difficult problems in practical nutrition.

The brilliant researches of Krause continue to throw a flood of light upon the etiology of tuberculosis, a realm in which light is still so much needed after forty years of laboratory study. His latest contribution¹⁰ gives us a satisfying anatomical basis for the different reaction of the rabbit and the guinea pig to tuberculous infection and suggests a possible explanation of the differing age incidence of various forms of tuberculosis in the human subject.

The posthumous publication of the late Dr. E. E. Southard's stimulating book on the Kingdom of Evils¹¹ must certainly be classed as an outstanding event of the year in the domain of Mental Hygiene, whether or not the majority of psychiatric social workers are prepared to accept the suggested classification of the problems with which it deals.

One of the most notable tendencies of the present time is the awakening of health authorities and of the public to the serious importance of street accidents as a factor in the death rate¹². The dramatic success attained in Baltimore, New York, Washington, and other cities in controlling such accidents through "Safety Week" campaigns indicates that there are exceedingly promising opportunities for the reduction of mortality along this line.

The forces which make for health progress in the United States have been greatly strengthened

1. Park, W. H., *Jour. A. M. A.*, lxxix, p. 1584, Nov. 4, 1922; *The Nation's Health*, iv, p. 725, December, 1922.

2. Kahn, R. L., *Arch. Dermat. and Syph.*, v, pp. 570, 734; vi, p. 332; *Young, C. C., J. A. M. A.*, 1922; lxxix, p. 1674.

3. Voegtlin, C., Johnson, O. M., and Dyer, H.: *Public Health Reports*, xxxvii, p. 2783.

4. D'Herelle, *The Bacteriophage. Its Role in Immunity*. Translated by G. H. Smith. Williams & Wilkins Co., Bal. Md., 1922.

5. Davison, W. C., *Jour. Bact.*, 1922, vii, pp. 475 and 491.

6. *Jour. A. M. A.*, lxxviii, p. 29, Jan. 7, 1922; *Jour. A. M. A.*, lxxviii, p. 1177, April 22, 1922; *Boston Med. & Surg. Jour.*, clxxvii, p. 101, *Jour. 29, 1922; Am. Jour. Dis. of Child.*, xiv, p. 327, October, 1922.

7. *Jour. Biol. Chem.*, v, No. 1, Jan., 1922.

8. *Johns Hopkins Hospital Bulletin*, Jan., 1922, xxxiii, p. 31, *Jour. of the A. M. A.*, Jan. 21, 1922, lxxviii, pp. 159-165; *Am. Jour. of Diseases of Children*, Feb., 1922, xxiii, pp. 91-106; *Dental Cosmos*, March, 1922; *Am. Jour. of Hyg.*, ii, No. 2, March, 1922; *Jour. of Biol. Chem.*, li, No. 1, March, 1922; *Johns Hopkins Hospital Bulletin*, April, 1922, 33, p. 125; *Johns Hopkins Hospital Bulletin*, June, 1922, xxxiii, p. 216; *Johns Hopkins Hospital Bulletin*, Aug., 1922, xxxiii, p. 296.

9. *The Nation's Health*, iv, p. 603, Oct., 1922.

10. Clark, T., and Collins, S. D.: *Public Health Reports*, xxxvii, p. 2415, October 6, 1922.

11. Krause, A. K., *Amer. Rev. of Tuh.*, vi, p. 1, March, 1922.

12. Southard, E. E., and Jarrett, M. C., *The Kingdom of Evils*. The Macmillan Co., 1922.

by the consolidation of the Child Health Organization with the American Child Hygiene Association and by the reorganization of the American Public Health Association along definitely professional lines¹². The presentation before the annual meeting of the American Public Health Association at Cleveland by the Committee on Municipal Health Department Practice of a plan for an ideal health department for a city of 100,000 population¹⁴ will, it is hoped, prove of substantial aid in the development and standardization of municipal health department procedure throughout the country.

Another document which deserves mention in any review of the health field is the report of a Committee on Nursing Education¹⁵, appointed by the Rockefeller Foundation to study "the proper training of public health nurses," a scope later inevitably broadened to include general nursing education as well. This report, which emphasizes the essential importance of better educational facilities for nursing education under educational management and supported by educational endowments, is stimulating developments in half a dozen university centers which promise before the lapse of another year to yield substantial fruit.

The wider question of the training of public health workers of all types was discussed at an important conference called under the auspices of the U. S. Public Health Service in March¹⁶; and this conference led to the appointment of a committee which will give continuous consideration to the problems involved in the future.

Altogether, the year has been one of substantial progress, both in the theory and in the practice of the public health,—a year which we may regard with satisfaction and from which we may take courage to go forward.

The Health Organization of the League of Nations

THE preceding summary of certain of the outstanding events of 1922 in the field of public health deals wholly with happenings in the United States. America, as we are gradually coming to realize, is after all a part of the world and the development of a strong and effective international health organization under the League of Nations is of immediate moment to us all. The meeting of the Health Committee of the League in August marked the completion of approximately the first year of its existence and was signalized

by achievements for which those who fought for the creation of the Committee in those trying days of 1921 did not dare to hope. The epidemic commission of the League has been steadily at work in Poland and plans for extending its activities northward into Latvia and eastward into the western marches of Russia and the Ukraine have been approved. Special commissions of sanitary inquiry have been sent to the Near East, to the Far East, and to equatorial Africa, in connection with the preparation of new International Sanitary Conventions and in cooperation with the Mandates Commission. It is particularly gratifying to note that America is cooperating, unofficially at least, through an arrangement with the International Health Board of the Rockefeller Foundation, by which the latter undertakes to finance two special branches of the Health Commission's work—namely, epidemiological intelligence and investigations, and the interchange of sanitary staff—to the extent, respectively, of thirty thousand dollars a year for five years and sixty thousand dollars a year for three years.

The first essay in interchange of sanitary staff began in October, in the form of a two week's course at Brussels for foreign public health officers, followed by two months of first-hand observation of the actual working in practice of various public health systems. The twenty odd officials taking this course are drawn from the health services of Belgium (2), Bulgaria (1), Czechoslovakia (2), Italy (5), Poland (5), Soviet Russia and Ukraine (5), Serb-Croat-Slovene State (2). It seems certain that this first experiment in cultivating the international spirit and giving international experience in public health service will reveal many and fruitful possibilities.

Progressive Conquest of Mosquito-Borne Diseases

THE last annual report of the Rockefeller Foundation brings inspiring news of the progress of the campaign against malaria and reminds us that the men who gave their lives in the war of the laboratory against yellow fever have not died in vain.

Under the head of malaria control new demonstrations were undertaken during the year 1921 in twenty-six localities in nine southern states and work previously inaugurated was continued in thirty-five places in ten states. Substantial reductions in the prevalence of the disease were effected at an average cost per capita of approximately one dollar. Reductions that had been secured during the previous year were maintained at an average per capita cost of twenty-five cents.

12. Ryder, A., and Stillwagen, H. P.: *The Nation's Health*, iv, p. 659.

13. *The Nation's Health*, iv, pp. 649, 653 and 665. November, 1922.

14. *Am. Jour. Public Health*, xii, p. 891, November, 1922.

15. *The Nation's Health*, iv, p. 405, July, 1922.

16. *The Future of Public Health in the United States and the Education of Sanitarians*. Public Health Bulletin No. 124, U. S. P. H. S. November, 1922.

The results of the campaign against yellow fever is even more encouraging and warrant the hope that Gorgas' program of radical extermination may yet be carried into full execution. In 1916, when this program was formulated, men who might have been better employed in presenting a united front to their common enemies, were fighting among themselves, but during the delay caused by the war among men one notable victory was recorded in the history of the war of man against yellow fever. Noguchi, of the Rockefeller Institute for Medical Research, visited Ecuador, Peru, and Yucatan and isolated *Leptospira icteroides* which is believed to be the causative agent of yellow fever. In 1918-1920 he prepared vaccine and serum for the prevention and treatment of the disease. From 1918 to 1920 yellow fever commissions and intensive preventive campaigns were organized in Central America, Columbia, Ecuador, Peru, and Venezuela. By means of an intensive campaign Connor eliminated the malady from Guayaquil, the chief endemic center. In 1920 a commission was sent to the west coast of Africa and late in the same year the Mexican Government organized a yellow fever commission and invited the cooperation of the International Health Board.

During 1921 Honduras, Nicaragua, Ecuador, and Costa Rica were free from the disease. Guatemala reported no case after February 2; Salvador's last case was recorded on February 15; Peru was free from the fever by July 16; and by November British Honduras was added to the list. The Brazilian government dealt with cases occurring in the northern part of the country.

Tests with Noguchi's vaccine indicate that it affords marked protection against yellow fever. Twenty-five of a group of fifty non-immune Peruvian soldiers who were being sent into an infected district were vaccinated against yellow fever. None of this group contracted the disease, while twenty cases did occur among the twenty-five unvaccinated. The value of the serum is also indicated by the results obtained in treating twelve yellow fever patients in Belize, Honduras. These patients were treated with serum on or before the third day of the attack and eleven recovered.

The war is drawing to a close and yellow fever is facing final defeat.

On Sale "As Is"

NOT knowing how long the world war would last and in order to insure themselves an adequate amount of surgical and medical supplies, our army and navy, during the eighteen months that we participated in the war, pur-

chased vast quantities of these supplies. Such was the urgency of the times that they purchased them not only from long established manufacturers but in not a few instances from manufacturers of little or no experience, and under specifications designed to meet the exigencies of the moment.

When the armistice was signed they found that there was a great surplus on hand. In due time steps were taken to dispose of this surplus. A division of sales was organized in both departments. It was the intention at first to offer these products to municipal, county, and state hospitals but these sources of outlet, it was soon discovered, were too limited. Printed lists, with definite prices, were then sent to all the hospitals in the country. Later other lists were sent out on which bids were asked. More recently the supply branch of the office of the surgeon general of the army upon approval by the director of sales has been holding auction sales of surplus medical and surgical supplies, purchased or contracted for during the war.

Each auction sale catalog stipulated that "all property listed in this catalog at said auction will be sold 'as is' and 'where is', without warranty or guaranty as to quality, character, condition, size, weight or kind, or that the same is in condition, or fit to be used for the purpose for which it was originally intended."

This undoubtedly means that while some of the products thus thrust upon the market are satisfactory, others are of questionable quality and fall short of present standards. Manufactured four or five years ago, and subjected to various climatic conditions while stored in different warehouses, or in transit to Europe and back, many of these supplies have undoubtedly deteriorated. Surgical sutures may have lost their tensile strength and their sterility; chloroform may have decomposed; chemical compounds manufactured into tablets and alcoholic extracts of vegetable drugs may have disintegrated; liquid preparations may have fermented or precipitated.

Against the war department's sales of surplus surgical and medical supplies that conform to adopted standards we do not complain, but on behalf of the hospitals of this country we most emphatically protest against the practice of selling medical and surgical supplies "as is." The practice undeniably jeopardizes health, not to say life.

The bureau of chemistry of the United States department of agriculture is vested by law with the function of administering the provisions of the pure food and drug act, and no drugs should be placed on the market by the war department, or by any other department of the federal gov-

ernment, until they have been tested, and have received the approval of this bureau.

At the very time the government is selling its citizens and non-governmental hospitals medical and surgical supplies "as is," it is buying the same kind of supplies, freshly and perfectly made, for use in its own hospitals.

Operating Factors in Industrial Hygiene

NO amount of care and money spent on the installation of a model factory, from the standpoint of safety and sanitation will yield results without continuous and intelligent expert operation. The essential factor in accident prevention is the work of the safety engineer in analyzing each accident case as it comes up and devising means for preventing its repetition. The essential factor on promoting physical health and efficiency is the work of the industrial physician and the industrial nurse in constantly studying processes, working conditions, and personnel, and their mutual reaction as revealed in sickness records and in productive efficiency.

It is precisely at this point that the machinery of industrial hygiene most commonly breaks down. A physician who comes into the plant for a few hours a day to render first-aid service or even to make routine physical examinations exactly as he might do in his own office, cannot possibly furnish the type of leadership which is essential to success. The time has gone by when any physician or any nurse could be considered good enough for industrial health service. The physician who is needed is an "industrial physician," a man or a woman who has specialized in industrial problems and who has the opportunity and the desire to study the particular problems of the individual plant so thoroughly as to bring about an adjustment between the work and the worker which will yield a maximum of results. The nurse if she is to be effective should be an "industrial nurse" with real vision of the field of public health and of its educational possibilities. At the present moment there is a widespread impression that industrial medical service has been "oversold," but the trouble lies in many cases with the type of service which has been sold and not with the essential value of health supervision. When we find that the studies of the United States Public Health Service as recently reported by Dr. L. R. Thompson indicate a 700 per cent variation in sickness rates in different plants, it seems fairly obvious that it is good economy to provide efficient machinery for controlling the factors that make for sickness. The primary element in such a pro-

gram is the employment of some one individual whose duty it is to make a continuous study of factors which affect physical health and efficiency in the particular plant in question. In certain instances it is possible to obtain expert service of this type from a physician in general practice; but it will usually be difficult to secure such leadership except from a physician whose life is devoted primarily to the study of industrial health. The plant of 500-1000 employees can well afford to employ a full-time physician of this type and the small industry can usually work out a cooperative plan for employing a specialist in industrial hygiene who shall serve two or more adjacent plants. If an industry has the vision to employ such a physician all the other details in the plant can be worked out by him. If it does not employ such a leader and coordinator but relies on casual medical assistance and inefficient nursing service, no perfection in plant construction will ever yield worth-while results.

Wider Significance of the Health Demonstration Plan

DURING the past year two notable health demonstrations have been projected—that of the Commonwealth Fund which through the Child Hygiene Association will finance a five year demonstration in three middle-western cities with a \$230,000 annual appropriation, and that of the Milbank Fund which will spend \$400,000 yearly in a similar program in a rural county, a section of a second class city, and a section of a first class city of New York state.

These munificent benefactions promise much for the cause of public health, but they are also full of significance in relation to the wider problems of American democracy. The greatest danger to the success of our democratic institutions lies perhaps not in corruption but in mediocrity,—in the inertia and the lack of vision which tend to characterize the conduct of public affairs in a nation where it is assumed that any man is good enough for public office if he be diligent enough in seeking it. The conduct of privately financed cooperative demonstration in government (for public health is a part of government), such as the International Health Board has carried on with success and such as are projected in these newer demonstrations, will tend not only to improve community health but also to convince the public that the whole art of government is of more importance than has been realized; that this art demands the leadership of experts; and that the following of such leadership will bring valuable returns in increased health and prosperity.

HEALTH IN INDUSTRY

*Problems Concerning Factory Sanitation,
Industrial Medicine, and the Health and
Efficiency of the Industrial Worker*

Claim Costs Reduced By Health Supervision*

By ROBERT S. QUINBY, M.D., SERVICE MANAGER, HOOD RUBBER COMPANY, WATERTOWN, MASS.

THIS paper presumes to deal with the methods of creation and maintenance of industrial medical service, the reduction of sickness and accident disability, and with the economic justification through savings in settlement of accident, sickness, or death claims. The greatest single appeal for health supervision is through a demonstrable financial saving of such service in connection with various forms of personal insurance as they appear in industry. The sound logic of improving health standards and the humanitarian element both contribute, but "money talks," and if it can be demonstrated that a plan of industrial health supervision will save money you have a customer.

One has little interest in or patience with many attempts to show in units of dollars and cents the accomplishments of industrial medical service. The motive is to be commended, but so many of the premises are unsound and so many variables enter in that one has little confidence in the conclusions. For instance, when it is said that so many man-hours at a given rate are lost on account of sickness or accident, it may, even under certain conditions, be an asset to be rid of the given individual, or in the case of another may mean an expense of one hundred times the man-hour-dollars involved. It is not to be inferred that I do not believe in the savings to be accomplished through the reducing of disabilities on account of accident or sickness by medical supervision, or that I do not think it desirable to study in every possible

way to measure and justify these savings, but I do plead for greater accuracy in conclusions, so that the sound foundations of industrial medicine may not be shaken when erroneous assumptions of this nature are discredited.

The methods and machinery by which a system of health supervision may be built up and conducted so that the greatest influence may be exercised in the reduction of costs in benefits, insurance or compensation, as applied to disabled workers in industry are (1) Physical examinations of applicants and periodical re-examination of those already employed. (2) Dispensary treatment of sicknesses, accidents, and in many cases care of dental, ocular, and other conditions. (3) Supervision of factory sanitation and the elimination of accident and disease hazards. (4) Absentee investigation, home nursing and medical supervision in such cases as it may seem advisable. (5) Education in health, personal hygiene, and safety. (6) Facilities for the settlement of all claims involved in any compensation or benefits for sickness, accident or death. . . .

Two years ago the Hood Rubber Company created a mutual liability insurance company for the purpose of carrying our own liability in industrial accidents. We have, since the creation of this company, entirely controlled and administered all matters pertaining to industrial accident claims, of course in compliance with state insurance regulations and compensation laws.

At the time our dispensary was established we employed approximately

three thousand workers, and this number gradually increased to an average of about 7,500 during the last three years. Throughout this period about one-third of those employed have been females and two-thirds males. There has been a representative age, nationality, occupational, and residential distribution, so that it need not be inferred that anything mentioned in this paper applies to any selected or unusual group of industrial workers.

From year to year additions were made to the health supervision program. In 1914 a dental dispensary was established as an adjunct to the medical service, probably the first in a factory in this country; later x-ray equipment was added, and in 1919 an ocular clinic was established. In 1917 physical examination of applicants for work and of those already employed was instituted, and in 1918 home visits of absentees by nurses, later supplemented by the services of a physician when desirable in sickness or accident, was inaugurated. These various activities are mentioned in order to bring out the gradual development, over a long period of time, of different cooperating branches of the medical supervision and claim settlement work, all directed toward the early detection, prevention, and reduction of disability due to disease and accident, and to show the background of the development of machinery for the settlement of all claims arising out of such disabilities.

On January 1, 1919, our benefit plan became effective. This provides for the payment of benefits in cases of sickness, non-industrial accident

*Read before the eleventh annual meeting of the National Safety Congress, Detroit, Mich., August 28, 1922.

and death, varying with length of employment from three months to five years and over, ranging from eight dollars to twelve dollars weekly, and covering a period of from seven to fifty-two weeks. Death benefits, again depending on length of employment, range from two hundred dollars to one thousand dollars at the end of five years of employment. The company bears all expenses of this plan and entirely controls and administers it. Here, again, is an example of our policy of dealing directly with our own employees in matters of personal industrial insurance. Department heads are given a considerable responsibility in connection with the investigation and approval of sickness and non-industrial accident claims. Their investigations, of course, are supplemented and in most cases initiated by visiting nurses and the medical department, but we wish to link up the department heads and foreman in the general administration of all such claim settlements.

Cases of sickness and accident, if not seen in one of the dispensaries before leaving work—and this is rare—are at the very latest discovered on the second day of absence by the nurse's home visit. The condition is determined as well as the probable disability and the case is revisited as frequently as may be indicated by given conditions. If an industrial accident, proper information of a medical nature is furnished to the foreman so as to enable him to make out the necessary accident reports. If from non-industrial accident or sickness, information is likewise forwarded to the department head in order to enable him to investigate and approve payments, so that claim settlements may be made promptly. Any new development in these cases is brought to the attention of the department head by the benefit or insurance office or, if discovered by the department head, to the attention of those in charge of claim settlements. We are always mindful of the confidences which should exist between physician and patient and do not betray these to department heads without good reason, so our workers are generally frank and free in their statements, feeling from experience that their rights and confidences will be regarded and that they will be accorded equitable treatment.

Payments both under compensation and benefit plan are made promptly and with the knowledge of department heads. In cases of question, such as will sometimes arise, we always suggest a consultant or offer to refer

the case to the decision of the accident board or to an impartial examiner. In the long run it is good policy to be as liberal as possible in such matters, for eventually you are able to build up a credit for fair dealing which will do much to help the general industrial relationship and to discourage malingering. If you are able to create such a reputation it is rare for workers to try to impose to any great extent, and in such cases as they do there is always possible speedy and effective redress.

For reasons quite apparent, I do not wish to go into detailed figures as to results, more particularly as referring to finances. In the first place, it is nearly impossible to compare such figures accurately with other experiences; conditions in two factories are rarely comparable—it is even more true in companies under different state laws as regards compensation or insurance. Then, too, it would not be feasible in many companies to attempt to carry out such work as we have found to be to our advantage. Detailed comparisons of our experience with other insurance costs are hardly fair to insurance companies, because they have many overheads that we are able to eliminate and thereby make a saving and also bad risks which must be offset by good risks at the expense of the latter, so I am simply going to give a few figures showing our disability experience and some general statements as to the economics resulting in our case, and if anyone wishes detail it will be furnished, but privately.

Because of the lack of dependable statistics it is impossible to compare our experience of recent years with that of more than five years ago. This is unfortunate, but it is found to be the situation in most plants, so the best we can do is to give our experience during such time as we have actually recorded. From all available evidence, experience would be much more favorable if we were able to go back of this period; then, too, the influenza epidemic had a very serious effect on disability records, both during its active stage and also as a result of the disabling complications which followed.

Considering first our industrial-accident disability reduction, records show that the average disability per employee per year was as follows: In 1917, 0.85 days; 1918, 0.61; 1919, 0.42; 1920, 0.39; 1921, 0.32.

Similarly, the percentage of employees who are reported disabled by industrial accidents yearly is as follows: In 1917, 0.24 per cent; 1918,

0.20; 1919, 0.14; 1920, 0.11; 1921, 0.10.

In other words, we have reduced by more than one-half the number of disabling industrial accidents and the disability time resulting therefrom during the last five years. Our experience indicates that our workers last year averaged to lose only about 5 per cent as much time on account of industrial accidents as industrial employees in the state at large. This very low rate is accounted for by our freedom from death cases plus lessened number of accidents and shortened disability per accident.

Our sickness and non-industrial accident records cover a period of three and one-half years and indicate that during that period our workers have averaged to lose 5.2 days on account of sickness and non-industrial accident. Our average total lost time from all reasons, including personal, has averaged during this time to be 5.3 per cent, while last year we were able to reduce this to 4.3 per cent, the lowest in our experience. Considering that about one-third of our workers are women and that except for accidents their rate of lost time is double that of men, we believe that these figures represent very nearly a minimum.

As to financial savings, all absence investigations, in spite of the fact that about two-thirds of the calls are on account of absences due to other than sickness or accident, are charged to the benefit plan. Including all this overhead, plus actual benefits, we were able to conduct this work for approximately one-half the cost of re-insuring this plan in a commercial company.

Our accident liability insurance company writes its compensation business at the same rates charged by other insurance companies. After having paid losses, overhead expenses, taxes, etc., and placing in reserve sufficient funds to liquidate all outstanding liabilities, we have, at the end of two years' experience, 78 per cent of earned income unexpended. This is the net percentage of profit on our total business.

Our experience satisfies us that properly conducted health supervision, cooperating with adequate machinery for reduction of lost time and for the elimination of accident and health hazards and with those in charge of the settlement of claims, economically justifies itself. Beyond this it gives us the advantage of relationships with our workers which are not measurable in dollars but which perhaps contribute more than we realize to the prosperity of the enterprise.

Laurentide Health Service, Grand'Mere, Quebec

IN THE city of Grand'Mere, Quebec, there exists a unique and significant relationship between an industrial health service and the community. The Laurentide Company, Limited, is a concern engaged in the pulp and paper industry. It owns a plant that has a daily capacity of 360 tons of groundwood pulp, 150 tons of sulphite pulp, 50 tons of cardboard, and 350 tons of newsprint. The mill and general offices, employing approximately 1,300 persons, are located in Grand'Mere which has a population of only 7,500. The city, having no hospital of its own, the Laurentide Company, Limited, was forced to operate an industrial hospital for the benefit of its employees and through the generosity and cooperation of the company the city has not only been stimulated and aided in the development of its own health service, but has been given an opportunity to share in the benefits of the complete industrial medical and nursing service of the company. Under ordinary circumstances a policy under which an industrial concern assumes responsibility for the general health of the community in which it is located may be of doubtful value. In this case, however, the small community provided very inadequate medical services on which the company could depend, and there is little question of the fact that the community is today much better off than it would be if the industry which employs a large proportion of its inhabitants were not in position to give not only employment for the citizens but adequate medical aid.

Organizing Health Board

A water supply system installed for the municipality by the company, modern residences constructed for employees, a golf course, tennis court, athletic field, assembly hall and club, library, night school, band, orchestra, and plant paper are some of the activities included in the recreational and educational program. A pension plan administered by a special committee, an inn, cafeteria, and dairy are other features instituted by the company in order that the working man in the small community can have some of the advantages that would be available in a larger city.

With the financial cooperation of the Laurentide Health Service, the municipality of Grand'Mere is undertaking the organization of a board of

health with a full time health officer and laboratory facilities for diagnostic and therapeutic purposes. Health problems concerned with general sanitation, housing, communicable diseases, food inspection, child welfare, and school life will be dealt with. The Rockefeller Foundation is cooperating in this work to the extent of providing a fellowship for the medical officer of health. A number of eminent physicians connected with McGill University and the Royal Victoria Hospital have consented to act as consultants to the Laurentide Health Service, thus making available expert advice and assistance in medicine, surgery, ophthalmology, and roentgenology. A prominent Montreal dentist is consultant to the oral hygiene clinic.

Careful consideration of the interests of the Grand'Mere physicians is the basis upon which cooperation with the municipality has been established. The company physician is a collaborator not a competitor. His services, as far as sick employees are concerned, are limited to consultations with the patient's family physician. Only under exceptional circumstances as in serious accident cases is the company physician permitted to render actual medical care. His duties relate primarily to the problems of preventive medicine and the medical aspects of group insurance. Experience has amply demonstrated that health activities of the sort embodied

in the program of the Laurentide Company ultimately increase the income and advance the interests of the general practitioners who reside in the communities where such work is carried on.

Local Doctors Use Hospital

Facilities of the Laurentide Hospital are extended to local physicians for their private patients and the charges of the x-ray department have been reduced to less than the cost of materials and maintenance so that its usefulness in diagnosis may be increased.

Though receiving the private patients of local doctors the hospital is primarily for the members of the Laurentide organization. It is a modern hospital in every respect and only graduate nurses are employed. The admission of company cases is through the first-aid office or the superintendent of the nursing service. As a rule, the hospital charges for injured employees, as well as surgeons fees, are paid by the company. Ward accommodations for medical or surgical patients who are company employees or residents of Grand'Mere is \$1.50 per day; for others \$2.00. The charges for semi-private and private rooms are from \$3.00 to \$5.00 per day. Maternity patients are received in the ward for \$2.00 per day. The operating room fee is \$5.00 for major and \$2.50 for minor surgery. Charges for ambulance service depend upon the



First-Aid Office of the Laurentide Health Service



Operating room of the industrial hospital of the Laurentide Company Limited. This hospital is the only one in the municipality and is open to all residents of Grand'Mere.

distance and the number of assistants required. Special drugs, special dressings, special medical supplies and appliances are charged at cost. Arrangements for a special nurse, at cost, may be made through the superintendent of nursing service. A relief committee has been organized to assist needy patients.

In addition to requiring that all employees of the nursing service must be graduates of training schools of recognized standing, preference is given to those that have had public health training. A physical examination by the company physician is a necessary preliminary to appointment. The entire staff is on a straight salary basis and all nurses pay for their board, room, and laundry and provide their own uniforms. Prior to appointment to the regular staff, three months duty as a temporary staff nurse is required. Those members of the staff engaged in municipal health work receive appointments under the Grand'Mere board of health.

The district nursing includes general care of the patient, bed making, care of the sick room, and instruction of the family. Continuous nursing is not provided but night calls in cases of emergency (usually for maternity patients) are made whenever requested by the attending physician. Patients with communicable diseases are visited in the ordinary day's work but such visits are last on the list.

All members of the Laurentide Mutual Benefit Association and other company employees receive nursing visits free of charge. Holders of in-

dustrial insurance policies receive visits at the expense of the insurance company.

Fees for nurses' home visits at time of confinement is from \$3.00 to \$5.00; regular visits to adults \$.75; regular visits to children \$.25.

In addition to the district nursing and the regular nursing service in the hospital, service is provided at a child hygiene clinic and the Laurentide Company's school. Five members of the nursing service are engaged in district and child welfare work. Between 1,200 and 1,500 visits to

homes are made by them every month.

Insurance features of the health service program are based on the principle of giving free life insurance to those who are sufficiently interested in their own welfare to be willing to pay for their health insurance. Health insurance is carried by a mutual benefit association backed by the company. The salary provisions of the company for staff members in case of illness are such that they are given only one-half the cost of their life insurance. No member of the Laurentide organization, except those on the salaried staff, pays one cent for life insurance; it is a gift from the company. Ninety per cent of the entire personnel belongs to the mutual benefit association which provides health insurance.

An active program of education in health and personal hygiene is carried on among both children and adults, a central safety committee directs the accident prevention work, all applicants for employment are given a physical examination and are aided in getting their defects remedied.

The medical service cooperates with the local medical officer of health in connection with problems relating to the sanitation of the community and with the operating manager of the mill from the standpoint of sanitary matters concerning the plant and its immediate surroundings.

Extension of some of the features of the health service program to the operations and personnel of the woods department of the company are under consideration. This winter the number of men in the company and job-



X-ray department of the Laurentide Health Service Hospital.

ber's camps is approximately 2,000. Owing to the large number of logs in the streams the woods department is now employing less than the usual number. Normally the employees of

this department number about four thousand.

Dr. Bernard L. Wyatt, director of the service, states that expenditures for the past year exceeded \$85,000

and that returns to the company in values that can be estimated in dollars and cents as well as more intangible results are more than sufficient to justify this expenditure.

American Association for Labor Legislation

ENACTMENT by the states of laws to provide old age pensions and unemployment compensation, and to strengthen the practical administration of workmen's compensation laws was urged in addresses on workmen's insurance before the sixteenth annual meeting of the American Association for Labor Legislation held in Chicago, December 28 and 29, by Frank E. Hering, chairman of the old age pension commission of the Fraternal Order of Eagles, the Rev. H. C. Hengell, president of the Wisconsin Association for the Prevention of Unemployment, and R. M. Little, former chairman of the U. S. Employees' Compensation Commission.

In general, persons entitled to pensions from the state fund must have been for five years citizens of the United States and for ten years residents of the state in which they apply, and have not been convicted of crime or vagabondage, and who can satisfy the proper state and county boards that their income from all sources is less than \$300 a year, according to Mr. Hering.

"The number of unemployed beyond a certain age is constantly increasing," he said. "Of men over 65, the unemployed were 26 per cent in 1890 and 32 per cent in 1900. When a machine wears out it is thrown into the scrap heap, and another, in our present industrial system, is taken in its place. Quite similar is the situation of the man who tends the machine. When his hearing, eyesight, or skill of hand begins to fail, his efficiency is lessened and business economy demands that he also be scrapped. Half of the workmen over 65 years are scrapped."

The United States alone in the civilized world, Mr. Hering asserted, has made no provision for old age dependency, but public sentiment back of the proposed old age pension laws has brought about an official investigation of the whole subject of poverty in old age in such states as Illinois, Wisconsin, Pennsylvania, Ohio, Massachusetts, California, New Jersey, and Connecticut.

"The vast army of unprovided for, worn-out veterans of toil," he concluded, "should not be stigmatized as

paupers. They should be taken from the scrap heap by the state and placed on an old age pension roll.

Mr. Little said that more effective administration is a present need in meeting the practical problems of workmen's compensation, and that there are serious doubts as to the advisability of allowing private insurance companies to carry industrial accident insurance.

"We must have a public administration that is competent, stable, and continuous," he said. "Unfortunately our state legislatures have not conceived of accident compensation administration as being on a par with the judicial and fiscal divisions of the government. Salaries are too low. Men of more ability are needed who can remain longer on the job. Medical service is unsatisfactory. There is need of better leadership. Safety work and rehabilitation should be coordinated with payment of compensation."

That the twelve-hour shift in industry, notably in steel, is destructive of health as well as of citizenship; that fatal mine accidents are increasing and call for more effective preventive measures; that compulsory arbitration is a menace to industrial peace, and that the government must aid with facts in forming a sound public opinion to combat the conditions that lead to strikes, were declarations made by other speakers.

Industrial waste and the general welfare was the subject of the discussion. The principal addresses were given by Charles R. Walker of the Atlantic Monthly, author of "Steel"; William W. Adams of the U. S. Bureau of Mines; Benjamin Selekan of the Russell Sage Foundation; John A. Fitch of the New School for Social Research, and Benjamin Squires, impartial chairman in the garment industry, Chicago.

"The 12-hour day, as I observed it," says Mr. Walker, "tended either to destroy, or to make unreasonably difficult, that normal recreation and participation in the doings of the family group, the church, or the community, which we ordinarily suppose is reasonable and part of the American inheritance."

"Another kind of inefficiency that

flowed quite naturally from excessive hours was absenteeism and a high turnover of labor," he declared. "Men kept at the job as long as they could stick it out and then relaxed into a two or three weeks' drunk. Or they quit the company and moved to another mill for the sake of change and a break in the drudgery."

"On the Monday following the exhausting 24-hour turn, Mr. Walker said 'men made mistakes; there were arguments, bad temper, and fights, and a much higher frequency of collision with the foreman. Efficiency, quality, discipline dropped.'"

Mr. Fitch condemned compulsory arbitration and declared that the public should fix the level upon which industrial disputes are conducted.

"What the public may do in the way of intervention," he said, "is the establishment of a legal minimum and the development of ethical standards. Compulsory arbitration will naturally frustrate the movement for industrial peace."

Public interest directed toward the causes of industrial disturbance is more to be desired than public hysteria manifested during such disturbances, Mr. Squires asserted.

"Unfortunately, public interest in industrial disturbances is most keen when the public is inconvenienced," he said. "Much of the legislation designed to put an end to direct action by employers or workers has been written during or immediately following prolonged industrial warfare which jeopardized public safety or comfort. The most effective of such legislation has laid major emphasis upon investigation and publicity. However, public investigation is not undertaken until the acute stage of strike or lock-out is reached or is imminent. What is needed is greater public interest in establishing and maintaining conditions that make for industrial peace without waiting until disturbance threatens or occurs."

Discovery of a serum to combat Rocky Mountain spotted fever, an acute infectious disease of high mortality, has been announced by Dr. Hideyo Noguchi of the Rockefeller Institute for Medical Research.

The Nurse in Industry

By ELIZABETH ROSS, R.N., SUPERVISOR OF NURSES, NEW HAVEN HEALTH CENTER, NEW HAVEN, CONN.

OF THE many types of health work open to the nurse, industrial nursing is one of the most appealing and the least satisfying. While it invites and needs the best that the profession can produce, it is rarely that a worthwhile nurse can long remain in the work without damage to her ideals. This is not because it is a pioneer field, but because of the difficult conditions under which the industrial nurse is compelled to work. She is like a child who is being brought up by a host of relatives, each with his own ideas and each jealous of the other's influence. Between them the child has little chance to make good and usually ends by disappointing everyone, herself most of all.

In the spring of 1920, when industrial conditions were still good, I went to New York and took a course in industrial relations, not because I wished to be a personnel manager or the head of an employment department, but simply to find out for myself what policy a personnel department was expected to have regarding public health in general, and the health of the employees in particular, whose welfare was to be its special responsibility in the great industrial system. I listened to many of the most successful personnel men of the country, to labor experts, industrial engineers, psychologists, employers who did and did not believe in the Lynch plan, experts on industrial housing, statistical experts on labor fatigue, and the heads of some of the largest welfare and research departments of this country, and never once were the words public health used. A great deal was said about the safety methods and a little about industrial insurance; but the health of the individual or its effect upon others was as a tale untold. The organization charts that were presented and approved did include nursing service but usually under a department whose head had neither knowledge or interest in a real health program.

This was the condition two years ago. Since that time everything that touches industrial relations has been at a standstill. The nurse within the industry has lost less than have many other workers, but this is because she had little to lose. The emergency hospital and first aid room must be maintained while the factory is in

operation. Insurance laws usually cover this point. The nurse whose task it was to look up the absentees may have lost her position, but that can be considered as a fortunate misfortune. During the last two years there has been no industrial depression among nurses, there are three or four positions waiting for any good public health nurse. It is not that the nurse needs the industry, but that the industry needs the nurse. Before this need can be met, something will have to be done to bring to industry an appreciation of the true value of maintaining good health conditions both within and without their industries. Labor unions must also realize that it is to their advantage to keep the workers in good health, not by paying sick benefits but by careful supervision of the health of their members. Such a program needs doctors and nurses working together with employers and employees, caring for the sick incidentally, but with all forces focused upon maintaining the force in health. What is the nurse's part in this health campaign?

Where Do Orders Come From

To understand the nurse, one must understand the process of her training. Nurses have been trained, like the soldiers, to obey their chief officer, and it is this habit of obedience, that properly used is an asset, when misused results in tragedy. The short sighted boss says, "You can take care of the fellow's hand just as well as a doctor, go ahead and fix it up, I'll stand back of you, what more do you want?" The nurse says "No, it is not my work," but the boss says, "You do it or I will get some one who will." The really intelligent nurse will stand to her guns and refuse to follow a course that she knows is unwise, but the nurse of poor caliber will do as she is told. Even though she may get by with it, such a nurse has placed industrial nursing just one notch lower professionally and someone will have to work just that much longer to make industrial work safe for a nurse.

The nurse who allows herself to act as a detective reporting on the employees who "Play hooky" places herself and her profession at the mercy of the unscrupulous and so violates every professional standard. One nurse after another has said to

me "I can't stay in industrial nursing and keep my self-respect. The money is all right, the hours are good, I love the work itself, but I have no one to help me. No one in the whole plant understands what I am really trying to do. Even Mr. Blank, who seems so interested in the workmen, can't see that I must have a free hand and the backing of the superintendent, if anything is to be accomplished," all of which causes the industrial nurse to feel that she has at present a dead end job.

The late Miss Florence S. Wright, shortly before her death, when discussing the subject of industrial nursing from the point of view of her own experience said: "I cannot go into the factory, much as I enjoy the work because the position that the nurse finds herself placed in is intolerable." Another nurse employed by one of the largest manufacturing corporations of the country in a local plant left because she was classed as an unskilled workman. When she protested she was told that they were sorry but it could not be helped as they could not put her on a level with the foreman. She was, however, expected to do the most confidential type of investigation work and to keep records of the most intimate sort regarding all of the employees. One of the plant managers openly bewailed the loss of this most efficient nurse, saying that she was very valuable to them and it was a great loss to have her leave, but it never once occurred to him that job analysis, or the lack of it, was the cause of their misfortune.

An employment manager once asked me why it was that they could not get a nurse for their factory when they paid more than the standard scale and their hours were the same as those of the organizations doing public health work in the city. The answer was easy for anyone who would look below the surface. Nurses who had been in their employ were then working with the various health agencies of the city for less money because they knew that their work counted for something and was understood by those employing them. Another case for job analysis.

Modern science could well demonstrate to industry what can be done in such a case. A good industrial plant could be set up on modern efficiency methods, with a department

of health and safety (note the sequence of these two words) given its proper place in the organization plan, with the work of maintaining the individual health at its highest possible standard, not as a philanthropy but as a natural part of efficiency measures. The care of the sick should be listed in its correct place as a remedial measure, important because of its direct effect upon the individual workman and indirect effect upon the whole working force. Industrial hygiene and sanitation would

be understood to include measures to protect the workman from all types of communicable industrial disease as well as from a broken shaft or fatigue, from bad ventilation or other mechanical causes. The personnel of such a department would need to be made up of the best safety engineers, doctors, nurses, and research workers. The department should be responsible to the corporation heads and stand side by side with all other executive departments justifying the policies by results only

and, in the language of the factory, *deliver the goods*.

It would be a worth while demonstration for all concerned; but who will take the initiative? We look with hope toward the great industrial insurance company or some of the national health organizations as being in the best position to further such a project. Something of the sort must be done and some standard established for industrial health work if the nursing profession is to give of its best.

Industrial Accidents Can Be Prevented*

Safety Devices and Education Cause Great Decrease in Factory Accidents

By DAVID VAN SCHAACK, DIRECTOR OF INSPECTION AND ACCIDENT PREVENTION, AETNA LIFE INSURANCE COMPANY, HARTFORD, CONN.

PREVENTION of industrial accidents has gone beyond prophecy to fulfillment, statistical data shows. Illuminating nation-wide statistics are lacking, for unfortunately no uniform method of keeping statistics of industrial accidents yet prevails. There are, however, significant—in fact, convincing—statistics available from individual industrial corporations, from insurance carriers, and from government records. A substantial start has been made in practically all types of industries in reducing accident frequency and severity, and the safety movement has thereby gained such impetus that not only can there be no retrogression, but failure to make rapid and steady advance will be impossible. We have many notable examples of what can be accomplished in accident prevention. It would be impossible in limited time to make a comprehensive survey of these, but a few examples in a variety of industries can be given.

Accident frequency and severity rates filed with the National Safety Council for the year 1921 are submitted on the standard accident report form adopted by the International Association of Accident Boards and Commissions, the United States Department of Labor, and the National Safety Council. In making the computations, deaths and permanent disabilities have been weighted in equivalent days lost according to the scale adopted by these organizations.

The S. F. Bowser and Company, Inc., Fort Wayne, Indiana, manufac-

turing oil tanks and pumps, shows the following record:

	1920	1921
Frequency rate	45.1	19.6
Severity rate	1.02	0.59
Average number of employees	1126	982

The Walworth Manufacturing Company, Kewanee, Ill., producing valves and fittings, reports:

	1920	1921
Frequency rate	24.47	10.07
Severity rate	4.91	0.31
Average employees	2580	1249

In the paper and pulp industry, the Kimberly-Clark Company, Neenah, Wisconsin, obtained the following results:

	1919	1921
Frequency rate	35	15
Severity rate	2.75	1.5
Average number of employees	2000	1900

The Texas Power and Light Company, Dallas, Texas, reports:

	1920	1921
Frequency rate	58.6	24.7
Severity rate	20.9	15.9
Average number of employees	830	750

One of the most interesting accomplishments in overcoming a difficult problem in accident prevention work is shown by A. L. Kaems, safety engineer of the Simmons Company, Kenosha, Wis. This company manufactures metal beds, and many of its employees are exposed to the point of operation on punch presses. It required much study and mechanical ingenuity to overcome this hazard. The majority of accidents in this type of industry involves loss of fingers or hands, in many cases causing permanent disability. During the year 1921 this concern has attained a reduction of 66 2-3 per cent in average lost time per man, and of more than 60 per cent in its number of accidents as compared with the year 1920.

The striking results obtained, in the face of such a difficult problem,

must cause the thinking business man to reflect when he reviews the reduction effected by the Simmons Company over a period of three years: 10.50 days per man lost in 1919; 3.90 days per man lost in 1920; 1.29 days per man lost in 1921; 36 fingers lost in 1919; 13 fingers lost in 1920; 5 fingers lost in 1921.

Many of us have been accustomed to think of railroad as one of the most dangerous occupations, and of railroad operation as one of the most difficult places in which to inaugurate successful safety work; yet when a man of vision, zeal, and training attacks the problems of railroad accidents, results follow. This is borne out by the experience reported by R. C. Richards, chairman of the Central Safety Committee of the Chicago and North Western Railway. During the year 1920, sixty-two employees met death, while during the year 1921, the fatalities were reduced to forty-three. The number of injuries during the year 1920 were 7,101 as compared to 4,836 in 1921. In 1920, when this company first instituted safety organization, the fatalities reached 97, and 8,404 employees were injured.

It is interesting to note that with an increase of 15 per cent in the volume of business handled in 1921 as compared with 1914, President S. M. Felton of the Chicago Great Western Railroad reports that accidental deaths in 1921 were 49 per cent lower and the injuries 71 per cent lower than in 1914.

Among industries which give the observer the impression of being most hazardous, steel making must certainly be included, yet in the steel indus-

*Read before the Sixth Annual Industrial Conference of the State of New York, Buffalo, November 21 to 23, 1922.

try we find perhaps the most striking illustration of the fact that industrial accidents can be prevented. Since 1906, the accident prevention work of the United States Steel Corporation has saved 35,000 men from being killed or seriously injured. In the current year, 1922, one year only, the corporation is having 30,000 less accidents involving loss of time beyond the turn. The effect of the corporation's accident prevention work is almost incredible. Think of a plant like the immense South Works of the Illinois Steel Company or the Farrell Works going one, even two months, without a single accident.

Leaving out of consideration the humanitarian viewpoint and the indirect economic value of its accident prevention work, the corporation is saving directly over a million dollars a year. That is to say, the cost of its accidents plus the cost of its accident prevention work, which is about a million dollars a year, is more than a million dollars less than the cost of its accidents alone would be if the rate of accidents prevailing in 1906 were applied to present employment and present accident costs. Charles L. Close, head of the corporation's accident prevention work, said to me recently: "The work is so thoroughly established that it is considered today a part of the manufacture of steel, just as much a process of steel making as is a blast furnace or an open hearth."

Prevention—Financial Gain

In the metal mining industry, we also find proof that accidents can be prevented. The United States Bureau of Mines has stimulated organization of safety work in this industry for several years, and its results are shown by the accident record covering 300 day workers ranging in number from approximately 60,000 to 81,000. Comparing 1920 with 1915, the rate for injuries per one thousand 300 day workers has fallen from 358.18 to 307.60, and for fatalities from 4.25 to 3.48. In 1920, the injured were 14.2 per cent less than in 1919, and the killed were less by 18.8 per cent.

Statistics cited prove that accident frequency and accident severity can be materially affected by safety work.

Proof over a wider range or direct financial gain from accident prevention is furnished by the experience of insurance carriers in the application of experience rating, which undertakes in the case of the individual plant to which it is applied to vary the manual rate for the classification to which the plant belongs, or this

rate as affected by schedule rating of the plant, according to the accident experience of the plant itself. In thirteen states within less than two years there have been 13,000 deviations through experience rating, and nearly 10,000 of these have been in the way of reductions, running as high as over 50 per cent of the manual or schedule adjusted rate. Results over such a wide range cannot be attributed to luck or the more favorable accident experience of less hazardous industries. They must come through a broad extension of increased interest in organized and effective safety work in industry generally. A few illustrations—from the experience of the Aetna Insurance Company will suffice.

A large plush and velvet goods manufacturing concern had been operating without giving any special attention to preventing accidents. Co-operative safety engineering work lessened its accidents to such an extent that experience rating reduced its rate to 31 per cent below schedule rate, from 41.6 cents per hundred of payroll to 28.7 cents.

A logging and lumbering plant with saw and moulding mills by safety engineering work has reduced its rate to 23.6 per cent below manual.

A contracting concern has obtained through its accident prevention efforts a rate of 61 per cent below manual.

A scale manufacturing concern has so reduced its accident frequency and severity by developing accident prevention work as to justify a rate reduction of 25.5 per cent below the schedule rate.

A large machine shop has by similar means obtained a rate of 44.7 per cent below schedule rate.

The increasing extent to which insurance rates are being reduced for individual concerns through experience rating is perhaps the most thoroughly convincing evidence that accidents can be prevented. An employer might be satisfied, for humanitarian reasons alone, to carry on safety work, and might be content if his record showed a reduction in frequency without inquiring too closely as to its effect upon costs, but when an insurance company reduces, through experience rating, the premium rate for a plant, it means that the plant has so improved its accident experience beyond the average for its classification that the reduction in rate is economically justifiable.

The fact that industrial accidents can be prevented is incidentally, but none the less forcefully, attested in two or three other ways. One is

found in the large expenditure of money running into the millions by insurance carriers for accident prevention work which they have carried on for years, and which is steadily increasing in both range and intensity, a work which runs from the inspection of plants for mechanical and physical defects to the stimulation of organized accident prevention effort in every possible way.

Reduced Insurance Rates

Another is the encouragement offered to accident reduction by the schedule rating plan, which undertakes to vary the manual rate down or up by presence or absence of safeguards and safe conditions. Insurance carriers would not expend large sums of money in furthering accident prevention, nor reduce their rates in accordance with the prevalence of safe conditions, were they not convinced that accidents can be prevented, and did they not firmly believe that reducing accidents has not only a humanitarian value to society but also an economic advantage. They could not afford to do so, for whatever the individual feelings of their managers might be, their business must be conducted upon a sound economical basis.

Still a third piece of evidence is found in the remarkable rate of growth of membership in the National Safety Council, and the persistency of that membership in the face of adverse conditions recently prevailing. During the disturbed state of business and industry following the war when industry generally was cutting out all avoidable expense the Council lost only 25 per cent of the 4000 and more membership—membership of industrial concerns, not individuals—which it built up so rapidly during the first half dozen years of its existence solely on the idea that accidents are preventable and this loss was confined chiefly to smaller concerns. I think it will be readily conceded that this affords real proof not only that industrial accidents are preventable, but that they are actually being prevented. It is beyond belief that so many employers would continue, in times when every dollar must be made to count, their support of an organization which undertakes to do nothing for them in the way of direct service but aid them in their accident prevention and associated work, unless they were convinced by their own experience that industrial accidents can be prevented and that the Council's aid actually helped them to prevent accidents in their plants.

Above all, accident prevention work

in any concern must be an essential part of the business if it is to be fully successful. Harking back to Mr. Close's remark, which I have quoted to you, it must be considered a part of the manufacture of the product, just as necessary a process as any other in the plant's operation.

Once the management's real interest is aroused, a comprehensive plan of organizing the accident prevention work must be established to see that the work has its real place in the plant's operation and that it is carried on systematically and intelligently. The methods followed under such organization are practically the same in all industries. The necessary means to the desired end is found in a combination of two factors. The first includes mechanical and engineering improvements. Lack of these is, in many industries and lines of work chiefly responsible for accident severity. They are also an earnest of the management's good faith. Workmen cannot be expected to do their part in avoiding accidents unless it is evident to them that the management is doing its part.

The second factor is organization and education of personnel, workmen, foremen, and superintendents. These two factors are so interdependent that it is practically useless, in most industries, to undertake to reduce accidents to any considerable extent without making use of them both.

In developing the first factor, mechanical and engineering improvements, there are two methods of approach. One might properly be termed the patch work method. When the use of machinery and mechanical apparatus began to replace hand work, machinery naturally was built for production at the minimum cost, and little attention was given to the danger of accidents from exposed gears, set screws, and reciprocating and revolving parts. A great change has gradually come about, but machinery is still turned out insufficiently guarded, and, of course, there is much of the older machinery yet in use. What has not already been safeguarded by the makers must, therefore, be safeguarded by the users, so far as such safeguarding is possible. The same necessity, of course, applies to physical conditions other than mechanical in a plant, when in its construction, lay-out, and equipment insufficient consideration was given to safety requirements.

Actual provision of such safeguards must be approached in a truly scientific manner if real results are to follow their installation. Only a careful

study of working conditions, a painstaking analysis of accidents occurring under them, and a searching inquiry into potential causes of accidents that may not have occurred will determine truly the hazards to which workmen are exposed and indicate the correct means of overcoming them. No remedy can be effective which is based upon a wrong diagnosis.

Conversely, the best diagnosis will be futile unless it is followed by the furnishing of the right kind of remedy. The nature of the safeguard to be provided is as important as the determination of the risk. A safeguard has two functions, that of effect and that of appeal. To fulfill these functions, it must not only be necessary and calculated really to prevent the accident which it is designed to avert, but it must serve its purpose without unnecessary interference with the doing of the work. In a word, it must be practical, wholly practical, and nothing but practical. If a safeguard is impractical, whether in effect or in appeal, it is useless and a hindrance rather than a help to the cause of accident prevention. An employer cannot be expected to continue spending his money for unnecessary safeguards, for safeguards which do not guard, or for those which do guard at the expense of a too material loss in efficiency. A workman cannot be expected to use a safeguard, if use can possibly be avoided when its predominant appeal to him is that of an unnecessary interference with his work.

Enlist Man on Job

There is no better way of assuring that a safeguard will be thoroughly practical, will fulfill both of its functions of effect and appeal, than to enlist the aid of the men on the job, the foreman and the workman. No one else knows so well the true risks of the work involved, the ways in which these risks lead to accident, and the manner in which they can be avoided with least interference with work. There is psychological result of such cooperation, the value of which cannot well be over estimated. If the man on the job feels that he has actually had a real part, even though a small one, in the provision of a safeguard for work which he is doing, or which is being done under his supervision, he is pretty sure to use it or to see that it is used. He comes to look upon it as his guard and to take the keenest interest in its maintenance and use.

The second method of developing mechanical and engineering improve-

ments is found in engineering revision. Of course, the application of safeguards to machinery of faulty design is in a sense engineering revision, but I am referring to engineering revision on a broader and more original scale, engineering revision which includes the design of buildings and working places, their location with special reference to necessary connection with transportation facilities, the provision of ready and safe access to every point where workers must go, adequate and properly arranged lighting and machinery designed from the safety standpoint as well as that of efficiency—the sort of engineering revision which makes everything as safe as possible from the very beginning.

When engineering revision in this sense prevails generally, the ideal not only from the humanitarian but from the economic viewpoint will be reached in this phase of accident prevention work. There is no innate conflict between safety and efficiency. On the contrary, they are largely interdependent, and the wide prevalence of safety engineering in the larger sense will not only tremendously increase results from accident prevention work but it will do this in the most economical way. Referring to machinery, for instance, the logical place to do safeguarding is in the factory where the machine is designed and constructed. Already many purchasing departments of large concerns are having the design of machines checked up for safeguarding before orders for them are placed. The time is coming when not only will every purchasing department do this, but every designer of machinery will have safety in mind in developing mechanical apparatus.

The second factor in reducing accidents is safety organization and education of the personnel. In many industries, this is the more important of the two, for in these only a relatively limited number of accidents are affected by physical and mechanical safeguarding. In all it is of great importance, for despite all the safeguarding that may be possible, even where the highest type of engineering revision prevails, there will be many accidents due to the human equation.

We can, however, in spite of difficulties encountered in endeavoring to remodel the fixed careless habits of some of the present day employees, take encouragement from the fact that safety education in the schools of this country is gradually developing a body of workmen for the future who will have safety as a part of their state of mind. When this generation comes to

man our shops, factories and other working places, organization and education of foremen and workmen will have practically unlimited possibilities.

Remarkable results in accident prevention have been obtained already

despite the largely patchwork nature of remedies applicable under existing conditions, giving ample proof that industrial accidents can be prevented, but they are small in comparison with what will be obtained when engineer-

ing revision in its complete sense and a personnel composed of individuals who, as one result of their education, instinctively think safety and act safely unite to make industry as safe as it is humanly possible to make it.

Conference Board of Physicians in Industry

AMONG the questions discussed at the thirty-fifth meeting of the Conference Board of Physicians in Industry, held November 18 outline for making physical examinations.

in New York City, were dental work in industry, inguinal hernia, and an

Dental Work in Industry

The experience of different members with dental work in industry was discussed and, while some felt that the value of this work had been overestimated, others were of the opinion that it was of growing importance. One case was reported where dental work had been carried on for a few years among a group of 550 employees, among whom no emergency treatments had been necessary during the past year. This was attributed to the prophylactic work which had been carried on among this group of workers.

It was decided that dental work in industry was justified for two reasons: (1) constitutional, in ridding the body of foci of infection; and (2) cosmetic, in improving the appearance of the individual. It is realized that the economic effect is one of major importance, but difficult to measure with any degree of accuracy on account of other influences which must be considered.

Inguinal Hernia

The question of traumatic inguinal hernia was again reviewed in light of the further experience of members. One case of possible traumatic inguinal hernia of recent occurrence was reported. In the experience of the other physicians present no case of traumatic inguinal hernia had ever been known.

It was the consensus of opinion that inasmuch as true traumatic hernia is exceedingly rare and of negligible importance from the standpoint of the industrial physician, the development of inguinal hernia should be considered an occupational disease and compensation should be paid on the basis of aggravation of a pre-existing condition rather than as the result of a definite injury.

Pain encountered has no relation to the size of the hernia sac as suggested, but is related directly to the amount of pressure that the sac makes upon the ilio-inguinal or ilio-hypogastric nerve. This explains why some small hernias are more distressing and painful than others of much larger size.

The fact was also brought out in the discussion that recurrence in operated cases may be due to rupture of the tissues along the line of stitches closing the original hernia. Only close examination will bring this fact to light. Many cases of this type are considered as recurrent hernia at the original site of operation. Another cause of recurrence is due to overlooking a small, indirect hernia which may be coincident with a larger direct hernia. Following operation for the direct hernia, the indirect may increase in size and severity of symptoms and be taken for true recurrence of the direct type.

Examination Outline

The standard physical examination outline developed by the Conference Board of Physicians in Industry early in its work has undergone slight revision as a result of the more extended experience of the members. Such changes were discussed and the revised outlined officially adopted. It is understood that this outline is to be used as a guide by physicians when making physical examinations in order that important matters will not be overlooked. Its adaptation as a form for recording physical findings is purely optional with the examiner.

In the making of physical examinations, it is realized that in many cases and for many purposes, a partial examination only will be necessary and that, barring special cases, the examination would need to consume only an average of from six to ten minutes per person. It is also understood that the procedure may be added to or subtracted from as the peculiar requirements of each industry may make advisable in the judgment of the examining physician. This outline is as follows:

SPECIAL SENSES

- (a) Eyes:
 - Visual Acuity: Right Eye.... Left Eye....
 - Visual acuity of 20/40 or less in both eyes indicates specified employment—Class III, and further investigation.
 - Visual acuity of less than 20/30 in one eye and less than 20/200 in the other with suitable correction indicates specified employment—Class III.
 - A greater disparity in vision of the two eyes indicates need for further investigation.
 - Reading Test: Right Eye.... Left Eye....
 -Size of type.....
 -Distance.....
 - Field of Vision: Right Eye.... Left Eye....
 -Normal or Limited.....
 - Loss of more than one-third of field of vision of both eyes, or loss of two-thirds of field of either eye indicates specified employment—Class III.
 - Color Sense: Ability to match colors and call them correctly.
 - Pupils: Reaction.
 - Puffiness of Lids
- (b) Ears:
 - Drums: Right Ear..... Left Ear.....
 -Hearing Power.....
 -By Watch.....
 - Use Ingersoll one dollar watch at thirty-six inches as normal. Any variation from normal to be indicated by a fraction whose numerator is 36, the denominator being distance at which watch can be heard. Deafness to be indicated by the word "contact." Hearing power of less than one-half normal indicates specified employment—Class III.
- (c) Nose:
 - Septum.
 - Turbinates.
 - Obstruction.
- (d) Mouth and Throat:
 - Condition of teeth.¹
 - Condition of gums.
 - Condition of tonsils.¹
 - Thyroid enlargement.

CHEST EXAMINATION

- (a) Heart:
 - (1) Myocardial test: Effort syndrome. Pulse recording before and after exercise.
 - (2) Blood pressure taken on all cases over forty years of age; others as indicated.
 - (3) Valvular disease, compensated or uncompensated.
 - (4) Arrhythmia.
 - (5) Tachycardia
- (b) Lungs:
 - (1) Inspection—lagging, apical retractions.
 - (2) Auscultation—Eight points to examine closely as follows:
 - Front: Apex of lung—right and left. Intraclavicular space—right and left.
 - Back: Suprascapular space—right and left.
 - Base of lung—right and left.

ABDOMINAL INSPECTION

- Abdomen. Inspection. Abdominal tumors.
- Hernia:
 - Inguinal: complete, incomplete, oblique, direct.
 - Size of external ring—
 - Impulse, present or absent—
 - Femoral hernia. Ventral hernia. Umbilical hernia.
 - Post-operative hernia.
 - Abdominal wall hernia.
 - Spine: curvature, mobility.
 - Ungs: Examined for hemorrhoids, fissures, fistulae, protrusions.
 - Genitals: Examined for varicocele and hydrocele.

CONDITION OF EXTREMITIES

- (a) Lower: Varicose veins; joint mobility; loss of member; deep reflexes; foot strain.

¹All deformities and contagious conditions should be noted in the proper place. Applicants should be rejected on physical grounds only when their employment would make them a menace to themselves, to others, or to property.

(b) *Upper*: Joint motility; loss of member; loss of digits; tremors.
General: Gait, Romberg, Skin.

Height, weight and age to be recorded.
 Suggested classification for conditions of teeth: (1) Good—No repair needed; (2) Fair—Minor defects; treatment advisable; (3) Bad—Serious defects needing immediately corrective treatment.

Diseased tonsils in adult should be removed. Such cases should be followed and removal advised. In absence of other disability diseased tonsils should put the person examined in Class II.

Following questions will give a good background for obtaining important family history information: (1) When did you last consult a physician? (2) Have you ever been in hospital or sanitarium? (3) Have you ever had heart trouble, lung trouble or tuberculosis? (4) Have you ever had tonsillitis? (5) Have you had fits or fainting spells? (6) Are you well and strong? (7) Have any relatives

had tuberculosis? (8) Have you ever had accidents, operations or injuries? (9) Have you weak lungs or heart trouble?

Classification of Physical Findings

Classification of Physical Findings: *Class I.* Physically fit for any work. *Class II.* Physically underdeveloped, or with some slight anatomical defect; otherwise fit for any work. *Class III.* Fit only for certain employment when specifically approved and supervised by the medical department. *Class IV.* Unfit for any employment.

Suggestions, arising out of the experience of physicians in industry who use this outline in their work, would be appreciated by the Conference Board of Physicians.

to ankles. Liver and spleen palpated.
 (12) Genitalia and inguinal canal inspected and palpated.

(13) Applicant faces about and bends forward.
 (14) Spinal and anal inspection and palpation.

(15) Legs inspected.
 (16) Applicant pulls up clothing and feet are examined.

(17) Simple movements of extremities will show any joint involvement.

(18) Blood pressure taken if indicated or on applicants over forty years of age.

(19) Any other laboratory tests indicated. *History*: Questions as to previous accidents, illnesses and operations. Date last visited physician, and cause for such visit.

The details under each of the above suggested steps may be amplified to suit the particular industry. Ordinarily such an examination can be made in five minutes.

ROUTINE FOR WOMEN

(1) Height and weight in ordinary clothing.

(2) (a) Examination of eyes for color blindness. (b) Examination by Snellen Charts of vision, both without and with correction. *Note*: Numbers 1 and 2 can be done before the following by a nurse.

(3) Applicants remove coats, shawls or wraps.

(4) General inspection with applicant standing. Romberg tried.

(5) Applicant sits facing examiner, who is standing and hearing tested with Ingersoll watch. Hair and scalp inspected.

(6) Examiner sits: In the order named, right ear, right eye, left eye, left ear, nose, mouth and throat are examined, with head mirror.

(7) Neck inspected and palpated.

(8) Chest inspected while comparing pulse and counting pulse.

(9) Apex and upper portion of chest percussed and auscultated.

(10) Simple movements of the extremities will show joint involvement.

(11) Applicant removes shoes and feet are examined.

(12) Blood pressure taken if indicated, or on applicants over forty years of age.

(13) Any other laboratory tests indicated. *History*: Questions as to previous accidents, illnesses and operations. Date last visited physician, and cause for such visit.

The details under each of the above suggested steps may be amplified to suit the particular industry. Ordinarily, such an examination can be made in five minutes.

New England Conference *

THE New England Conference of Industrial Physicians has developed and standardized the following method for making routine physical examination of applicants for employment in industry. Inquiry among the members of the Conference brought out the great diversity that marked procedures in this work.

The Conference undertook the preparation of a concise method which as here outlined has been employed by some members of the Conference for several years.

In order to disarm the applicant of any suspicion regarding the purpose of the examination, it is deemed expedient to discuss the value of such examinations, both to the applicant and to the industry, at the time the physical examination is made. It is also felt that the experience of the Conference members has developed a satisfactory examination of female workers which requires little or no disrobing on their part. It should be kept in mind that the use of this outline refers to the examination of the average individual who is in all probability acceptable for industry. In those cases which exhibit defects or diseases it is assumed, of course, that a more detailed examination will be made, depending upon the findings and other conditions surrounding the case. It is felt that the element of time consumed in making examinations is one of great importance. Experience has shown that the attached outline, from step 3 on, can be covered in approximately five minutes. Special cases will require more time; also, the requirements of certain industries or processes within an industry would necessitate a more thorough examination

than here suggested. The detailed outline follows:

ROUTINE FOR MEN

(1) Height and weight in ordinary clothing.

(2) (a) Examination of eyes for color blindness. (b) Examination by Snellen Charts of vision, both without and with correction. *Note*: Numbers 1 and 2 can be done by a nurse.

(3) Male applicants, stripped to the waist and with both feet bare.

(4) General inspection with applicant standing. Romberg tried.

(5) Applicant sits facing examiner who is standing and hearing tested with Ingersoll watch. Hair and scalp inspected.

(6) Examiner sits: Right ear, right eye, left eye, left ear, nose, mouth and throat examined in this order with head mirror.

(7) Neck inspected and palpated.

(8) Chest inspected while comparing pulses. Precordium palpated while counting pulse beat.

(9) Completion of chest examination.

(10) Test knee jerks.

(11) Applicant stands and drops clothing

National Child Labor Program

THE National Child Labor Committee reports field work in seven states in 1922 and legislation in five. Members of the field staff have been engaged in the following fields:

Alabama—Study of laws affecting children and recommendations for legislation for the state child welfare department.

Iowa—Study of juvenile street work in Des Moines, Davenport, Cedar Rapids, and Mason City.

Kentucky—Cooperated with the Children's Code Commission in the drafting and introducing of bills, especially the child welfare commission bill. Brought previous study up to date.

Michigan—Study of child labor in the beet fields. Report will be completed shortly.

New Jersey—Study of the health problems of the Girls' Continuation School in Newark, supplementing study of last year.

New York—Cooperated with Na-

tional Child Health Council in the health study in Erie County, New York.

Ohio—Study of child labor in the onion fields, in conjunction with the Institute for Public Efficiency and Department of Industrial Relations. Report will be completed shortly.

Virginia—Cooperated with the Children's Code Commission on important child labor and compulsory school attendance laws which passed.

Short investigations were also made in New York, Nebraska, North Carolina, and legislative assistance was given in Rhode Island.

Eleven states met in regular session. The most important state legislation on child labor and kindred subjects is briefly summarized as follows:

Kentucky adopted several constructive educational measures and enacted a law to create a child welfare commission to continue the work of the Children's Code Commission.

Maryland established a new bureau of child hygiene in the department of

*For purposes of comparison and comment there is presented herewith parallel work looking toward standardized practice in physical examination developed by industrial physicians in New England.

health and provided for vocational supervision for mentally retarded children.

New York enacted a children's court act; made changes in the administration of mothers' pensions, in the procedure for issuing employment certificates, and in the domestic relations law concerning child placing. The compulsory education law was amended, making it more enforceable.

Rhode Island raised the educational requirement for employment certificates. A 48-hour law for children under 16 was defeated.

Virginia extended the 14-year age limit to include all gainful occupations except agriculture; raised the age limit for street trading; prohibited night work in street trades and street permits for boys 12 to 16; set a 16 year age limit for boys and 18 for girls for work in specified occupations. Hours were reduced from 48 to 44 for children under 16 in all gainful occupations except agriculture, with an exemption for canneries during vacation. School attendance was made compulsory from 8 to 14 years during the entire school year.

The mothers' pension act was extended and legislation relating to juvenile courts, child caring institutions, etc., was also passed. A children's bureau was created within the state board of public welfare.

The action of the trustees in authorizing a campaign for a child labor constitutional amendment determines in part our immediate future policy, states *The American Child*. "It is nevertheless necessary to continue active cooperation with our associates in backward states that are attempting to secure advanced legislation, and we conceive this to be in harmony with the purpose of the Board. During the past year sixteen states called on the committee for general surveys, special studies, or legislative assistance which we could not undertake because of limited staff and funds. The recommendation of an increase in our annual budget from \$100,000 to approximately \$185,000 contemplates the expenditure of practically the entire additional sum in the extension of our field work and publicity for the constitutional amendment and our state activities."

The plaintiff was a stone cutter who was put to work at a defective machine surfacing stone. He had not been doing work of this sort for a time and the muscles called into play were soft and became sore, also the defective machine required great effort to operate. He suffered pain but continued to work because "he had a family to support and was very reluctant to cease remunerative employment. After several weeks he noticed that the pain was no longer as acute as it had been at first, but the shoulder was becoming stiff. . . . He also noticed that his shoulder blade would leave its position in the back and would stand outward when his arm was raised in an upward position." It was found that "the muscles which control the shoulder have become atrophied through degeneration of the nerves supporting them, and that "there nerves under the heavy strain required by the work of this machine, as aforesaid, were subjected to excessive traction and became, for all practical purposes, dead." The Court held that these injuries were not accidental under the Compensation Law. "The Compensation Act was not designed to cover cases where injuries result from ordinary overwork or too long continued effort without any sudden or violent rupture or collapse of some physical structure or function of the body." —*Young v. Melrose Granite Co., 189 N.W. 426.*

Recent Compensation Decisions

BY DOROTHY KETCHAM, DIRECTOR, SOCIAL SERVICE, UNIVERSITY HOSPITAL, ANN ARBOR, MICH.

IN THE case of a watchman sixty-three years old, while making his rounds suddenly feeling a sharp pain in his knee which caused him to fall, the Supreme Judicial Court of Maine, June 19, 1922 has held that a finding of consequent injury received in the course of and arising out of his employment was warranted within the Workmen's Compensation Act. "The incident happened in the early morning, about 1 o'clock of June 8, 1921. The claimant was then, and had been for many years, employed as a night watchman. . . . His duties began at 6 o'clock at night and continued until 6 o'clock in the morning. They included the hourly winding of the clocks placed in different parts of the mill. On this night he had regularly made his rounds, each time climbing seventy-two steps. He was upon his rounds and had just climbed a flight of stairs and proceeded about ten feet inside a room, walking on a level floor, when, as he describes the occurrence, "I felt a little pain in my knee below these cords. I don't know whether it was in the knee or what it was; it all gave out. . . . It went out from under me as quick as a flash;

then I went down. . . ."

The decision of the court was as follows:

No testimony was introduced by the employer or the insurance carrier. Upon the undisputed testimony the chairman awarded compensation, and the respondent appeals.

That the injury was received in the course of the employment is evident. The claimant was at the time engaged in the work which he was employed to perform; that is the test.

Did the injury arise out of the employment? This question must alone be answered in the affirmative. The chairman has so found upon the undisputed facts. We think that the finding is warranted.

Here there must be some causal connection between the conditions under which the employer worked and the injury which he received. That the sudden cramp and instant fall of the claimant was caused by the performance of his duty in hourly making his rounds and climbing the stairs may properly and reasonably be found; it was traceable to his work.—*Webber's Case, 117A, 515.*

THE Supreme Court of Minnesota, July 14, 1922 declared that the Workmen's Compensation Act does not cover injuries resulting to the muscles and nerves through a too long continuance at a task that is too heavy for the employee, and where there is no sudden or violent event producing at the time injury to the physical structure of the body. Only an outline of the situation will be given.

THE Supreme Court of Oregon, July 29, 1922 held that an appeal does not lie under the Workmen's Compensation Act from action of the Industrial Accident Commission, in the designation of a physician and hospital for an injured workman. The matter is entirely within the commission's discretion and is not mentioned in the act as a measure for which the right of appeal is granted. "While in this particular instance the plaintiff selected a competent surgeon, there would no doubt occur many instances where ignorant workmen, if allowed to select at will a surgeon to attend them, might fall into the clutches of unskilled quacks whose ministrations would prolong their disability and thereby inflict unnecessary suffering upon them and an increased financial burden upon the compensation fund. For these reasons the law has properly placed the selection of a physician upon the commission, and from the honest exercise of the discretion so given there is no appeal."—*State v. State Industrial Accident Commission, 208, Poe 716.*

INSTITUTIONAL HEALTH

The Health Problems of Schools and Colleges, Hotels, Summer Camps, Children's Homes and Homes for Dependents

Methods of Determining Malnutrition*

Comparison of Pelidisi, Wood Height and Weight, and Dunfermline Methods

By S. JOSEPHINE BAKER, M.D., DIRECTOR, AND J. L. BLUMENTHAL, M.D., BOROUGH CHIEF, BUREAU OF CHILD HYGIENE, NEW YORK CITY.

THE undue prevalence of under-nourishment among school children which has been evident during the past five or six years has resulted in an extended interest in methods of determining degrees of nutrition, as well as methods for the prevention or correction of this condition. The present status of our standards for determining undernourishment is not wholly satisfactory. The simplest method, and the one that is most generally used, is that of determining the relative weight for the height of the child. Age, in this case, may or may not be taken into consideration. It is conceded that such a method offers a readily available and rough test of a child's nutritional condition. It is, however, unsatisfactory in a certain proportion of cases, and cannot be considered scientifically adequate.

Various authorities have published standard tables of height and weight of children. These have been based upon groups of children living in a city environment and rarely take into consideration suburban or rural conditions or the enormously important racial factors which affect physique. Authorities also vary in their relative determination of the nutritional standard. The Child Health Organization, which has published the height and weight tables compiled by Dr. Thomas D. Wood of Columbia University, estimated that any child falling 10 per cent below this weight for his height is undernourished. Dr.

W. R. P. Emerson, Professor of Pediatrics at Tufts Medical College, Boston, states that a child who is 7 per cent below the given weight for height cannot be considered properly nourished.



FIG. 1—An easily contrived apparatus for taking measurements under the "pelidisi" system. The child sits erect on the seat provided while the sitting height is taken. Both legs hang free, and the occiput and sacral portions of the vertebral column are in firm contact with the measuring rod.

Contrasted with the group who depend upon relative weight for height as the determining factor of nutrition, a large group of medical and public health authorities have based their standards upon the results of a complete physical examination of each child, including the estimation of height and weight. Recently, a third

method followed by Dr. Pirquet, of Vienna, and called by him the "pelidisi" has been attracting attention in this country. The literature on the subject is not extensive, but the reports from the Pirquet clinic seem to show that it has been a satisfactory method under the conditions which obtain in the work there. Recent literature has shown that the method has been, and is being, tested out in this country. The reports, however, are not universally commendatory. In fact, the general impression gleaned is that the system does not seem suited for use with the average child, as found under conditions existing in the United States. These conditions are, of course, in marked contrast to those which obtain in the starved or semi-starved children included in the group under Dr. Pirquet's observation. Reference is made to his writings, and to other literature on this subject, for the exact details of the pelidisi method. Briefly, it may be said to be based upon the relation of the weight to the sitting height of the child, with an evaluation of the standards of nutrition on a scale of 100; 93 being considered the minimum normal, anything below that indicating an undernourished condition.

During the winter of 1921-1922, an experimental study to determine the relative values of these three most prominent methods for determining nutrition was made at P. S. 43, Borough of Manhattan, New York City. This school is in a fair residential section of the borough, and covers the grades from kindergarten

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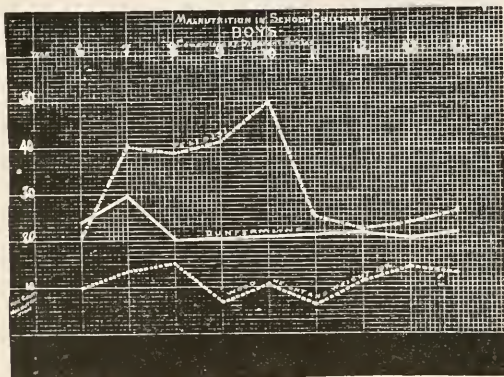
to 8b. The children attending it are representative of many racial groups of the city. There is in this school no predominating foreign race group. The social conditions in the homes

procedure recommended by the originator and publisher of these tables, a child 10 per cent underweight, for his height and age, was considered undernourished.

physical examination or by any other method. It consists, briefly, of dividing the children into four groups according to their degree of nourishment. These groups are distinguished as follows:

- (1) *Excellent*.—Means the nutrition of a healthy child of good social standing.
- (2) *Good*.—Refers to a child whose nutrition falls just short of the above standard.
- (3) *Requiring Supervision*.—Refers to children whose nutrition is on the borderland of serious impairment, and who require supervision and care.
- (4) *Requiring Medical Treatment*.—Children in this classification have their nutrition seriously impaired, and need constant medical oversight.

With the "pelidisi" system it was soon found that great care must be exercised in order that the tests might be considered at all accurate. It is evident that great care must be used to see that the children are properly placed on the measuring apparatus. If a child does not sit erect while the sitting height is being taken, differences of one-half to one inch will constantly be noted. The children must be kept under constant observation by the person taking the measurements in order that he may be sure they are sitting squarely on the seat provided, with both legs hanging free, and with the occiput and the sacral portion of the vertebral column firmly



Comparison of the Pelidisi, Dunfermline, and Wood height and weight scales for malnutrition in school boys.

of the children are those of the wage-earning class. No excessive poverty is to be found but, on the other hand, the incomes of the families rarely rise above the amount actually needed for maintenance.

Three Prominent Methods

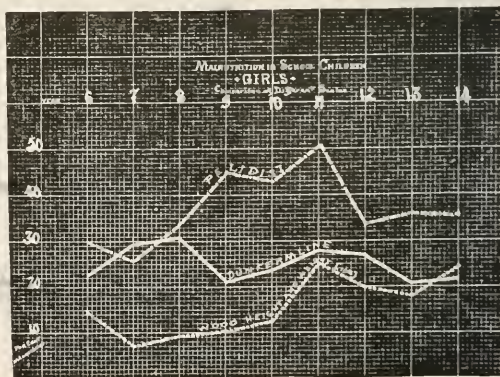
Dr. Jacob Burstan, medical inspector assigned to this school, made all the examinations. In all, 1,814 children were examined, the same children being used as a basis for the three studies; that is, each child had his nutrition determined by the three methods indicated. The methods used for determining nutrition were:

(1) Complete physical examination. This method included weighing and measuring the children, but such height and weight data were taken as confirmatory indication of proper nutrition or its lack, rather than as a final determining factor. The factors taken into account were the general appearance of the child, condition of the skin, subcutaneous tissues, mucous membranes, and musculature, the vigor or listlessness which appeared in the child's facial expression, carriage, posture, movements, voice, interest and attention, or any other physical condition which indicated a normal or abnormal physical status. The results of these examinations were recorded according to the Dunfermline scale.

(2) Estimation of relative weight in relation to height, as determined by tables prepared by Dr. Thomas D. Wood, published by the Child Health Organization. In accordance with the

(3) Pelidisi, or Pirquet method, using specially prepared apparatus. Estimation was made in each case of the child's "pelidisi," a standard of 93 being taken as the minimum determination of adequate nourishment.

In all, 1,814 children were examined by each of the above methods—1,147 boys and 667 girls—and the results were recorded by both the English



Comparison of the three scales for malnutrition in school girls.

and metric systems of measurement.

The Dunfermline scale, noted under No. 1 above, originated with Dr. Alister Mackenzie, of the Carnegie Dunfermline Trust, Dunfermline, Scotland. It is in no sense a method of determining nutrition, but offers an easy usable scale for recording the degree of undernourishment found after

in contact with the measuring rod. The child's hands should be placed in his lap.

The apparatus used in the present study (Fig. 1.) was specially devised by Dr. Blumenthal and cost, in all, not over three dollars. A stool was secured with a seat not too wide, so that the knees of even the youngest

children could bend at the rim of the seat and allow the legs to hang free. The legs of the stool were trued so that the seat was level and about sixteen inches from the floor level. The stool was then firmly secured to the floor so that it could not be moved about, and so that each child's measurement could be taken from exactly the same position. A yard stick was secured with the metric system of measurements on one side and the English system on the other. To this, an ordinary carpenter's wooden square was fastened by means of spring clips so that the longer arm of the square projected at right angles to the measuring rod while the short arm traveled up and down on the narrow surface of it. Parallel with the longer arm and exactly on a level with the lower surface were tacked two strips which projected over the measurements on the measuring rod and served as indicators in measuring. The measuring rod itself was fastened directly to the upper surface of the seat of the chair in the center of the back and perpendicular to it. It was fixed to the wall so that it could not readily be displaced. The entire apparatus occupied so little space that it was never found in the way. The lower surface of the horizontal arm of the square rested on the highest portion of the skull of the child, and the measurement was then taken by one observer for the metric measurement, and by an observer on the other side for the English. These measurements were immediately transcribed to the tabulation sheet and the "pelidisi" worked out therefrom after the child had been weighed. Variations of from one-quarter to three-quarters of an inch were noted by supervisors until the observers had been thoroughly instructed and paid strict attention to the position of the child and the exact measurements on the ruler.

Table 3 shows that the age groups were fairly evenly distributed. In the 15-16 year groups there were so few children that it was not thought wise to include them in the percentage tables. This lack of children in the age groups mentioned is in accord with the common custom of large numbers of children leaving the elementary schools when they reach the age of fourteen years.

Table 1 shows conditions of malnu-

TABLE 1.—MALNUTRITION AS DETERMINED BY THE EXAMINATION OF 1,814 CHILDREN BY THREE DIFFERENT METHODS.

	Physical Examination and Grading by Dunfermline Scale	Wood's Table of Height and Weight	93 and Under	"Pelidisi" 92 and Under
Boys	23.5%	17.7%	31.1%	20.5%
Girls	26.3%	29.1%	37.5%	25.8%
Both sexes	25.5%	22.2%	33.5%	22.3%

TABLE 2.—RACE GROUPING OF CHILDREN EXAMINED.

Country	Number	Per cent
United States	608	33.6
Ireland	187	10.4
England	186	10.3
Russia	126	6.9
Germany	105	5.8
England	94	5.2
Austria	75	4.1
Poland	49	2.7
All others not noted	404	22.1
Total	1814	100.0

TABLE 3.—DISTRIBUTION OF AGE GROUPS.

Age	Boys	Girls	Total
6 years	167	62	229
7 years	111	102	213
8 years	118	97	215
9 years	103	80	183
10 years	119	93	212
11 years	113	64	177
12 years	160	59	219
13 years	125	39	164
14 years	104	41	145
15 years	72	21	93
16 years	18	9	27
Total	1147	667	1814

trition found, as determined by the three different methods. It will be noted that the results based upon the height and weight tables show a lesser incidence than the physical examination method. The "pelidisi" of 93 and under, however, shows a largely increased evidence of undernourishment, if based upon this method. For this reason a "pelidisi" of 92 and under was also used, the results in such case more nearly approximating the results with the height and weight tables, and being slightly less than those obtained as a result of physical examination.

Tables 2 and 4 are those of racial incidence, and are based upon the nativity of the mother. Some difficulty was experienced in obtaining this information, but it is felt that sufficient was secured to indicate the general racial distribution with accuracy. By far the largest race group was that of the United States, 33.6%. Next largest was Ireland, with 10.4%; Italy,

9.2%; and Russia 6.9%. The incidence of undernourishment as shown in comparison with the race groups is indicated in Table 4, based upon physical examinations recorded by the Dunfermline scale. It is interesting to note that the greatest percentage of undernourishment was found in children of German stock, 34%. Ireland was second, with 31.5%; England third, with 30.0%; Poland fourth, with 26.5%; and the United States fifth, with 24.4%. The Italian group showing the lowest proportion of undernourishment, 13.7%.

Table 5, which gives the results of an analysis of existing malnutrition by age groups, shows some marked variations between the sexes in the various years. In general, however, the variations seem to be greater between the two sexes when the degree of undernourishment is based upon the standards of the Wood tables or the "pelidisi" method than when it is determined by physical examination, graded by the Dunfermline scale.

Conclusions from Survey

This survey would seem to show that:

(1) The determination of degrees of nourishment by means of the height and weight standards according to Dr. Wood's tables shows a lesser incidence, 22.2%, than the results of the complete physical examination recorded by the Dunfermline scale, 25%.

(2) The "pelidisi" of 93 and under shows an excessive percentage of undernourishment that does not seem to be warranted either by the physical examination of the children or by the estimation of their nutrition by the height and weight method, resulting as it does in an average of 33.5% for

TABLE 4.—MALNUTRITION BY RACE GROUPS (DUNFERMLINE).

Nativity of Mother	Number Examined	Number Found to be Undernourished	Per cent Undernourished
Germany	105	36	34.1
Ireland	187	59	31.5
England	95	28	30.0
Poland	49	13	26.5
United States	608	148	24.4
Austria	75	17	22.7
Russia	126	18	14.5
Italy	166	23	13.7
All others, not recorded	101	110	27.3
Totals	1814	452	25.0

TABLE 5.—MALNUTRITION BY AGE GROUPS—DIFFERENT SCALES COMPARED.

	6 yrs.		7		8		9		10		11		12		13		14	
	Boys	Girls	B.	G.	B.	G.	B.	G.	B.	G.	B.	G.	B.	G.	B.	G.	B.	G.
Dunfermline	24.1	22.6	29.8	29.4	20.3	30.9	20.4	21.2	21.0	23.8	21.2	28.2	21.8	27.1	20.8	20.6	22.2	21.9
Wood	10.6	14.5	13.5	7.9	15.5	9.2	7.7	11.2	10.9	12.9	6.2	25.0	11.8	20.3	14.4	18.0	13.4	24.3
"Pelidisi"	20.1	30.7	40.5	25.8	39.0	34.0	41.6	45.0	50.0	43.0	25.7	51.5	22.5	33.4	24.0	36.0	26.9	35.8

NOTE.—The 15 and 16 year groups are eliminated from table because of small number of children in these groups.

both sexes. The "pelidisi" of 93 and under, with a total of 22.3 for both sexes, more nearly approximates the condition of undernourishment found by the height and weight tables of Wood, but is less than the total of 25% found by the physical examination method.

(3) The complete physical exami-

nation of each child, using the Dunfermline scale as a method of recording the findings, affords a method based upon scientific knowledge and trained medical opinion. The fact that the result of these examinations showed that 25% of the children were undernourished, while the height and weight tables indicated an incidence

of 22.2%, and a "pelidisi" of 92 and under showed 22.3%, would seem to indicate that physical examination of children discovers some cases of undernourishment which may be overlooked by other methods. It also indicates that a complete examination of the children is possible under the conditions which obtain in school life.

Cooperative Study of Institutional Dietaries*

Correlation of the Height-Weight-Age Ratio With the Dietary

BY ELIZABETH C. SPRAGUE, PROFESSOR OF HOME ECONOMICS, UNIVERSITY OF KANSAS, LAWRENCE, KANSAS

THIS study illustrates the possibility of cooperative research between schools, institutions, and other agencies. In this instance the cooperating agencies were the Kansas State Board of Administration, the State Training School, the home economics department of the state university, and the Child Hygiene Division of the Kansas State Board of Health.

In the spring of 1919 the newly appointed superintendent of the institution for the feeble-minded, now called the State Training School, Mr. Wylie W. Cook, wrote to the state board of administration asking them to send one to advise him as to the dietary, saying that he was not satisfied with the appearance of the inmates.

The result was that the author, enlisting the services of Dr. Florence Brown Sherbon, chief of the Child Hygiene Division of the State Board of Health and Miss Ora Webb, then a student but later an instructor in the department of home economics, spent three days at the institution investigating conditions. The following data were secured:

The steward's records of the food issued during the previous ten months.

The kitchen records of the food used during the previous twenty-eight days.

The kitchen records of the food used during two days of the investigation.

The height-age-weight ratio of 467 inmates. For a variety of reasons 75 were not examined and 70 were "dwarfed" so that they could not be classified.

Calculations of the average per capita food consumption and its nutritive value were made using the accepted methods.

During the following twelve months the inmates were regularly weighed each month and the weight sheets sent to the Division of Child Hygiene for tabulation and correlation. At the end of the twelve months, Miss Viola Anderson and Miss Ora Webb, instructors in the department of home economics returned and made a second study of the dietary duplicating the procedure used in the first.

The steward's records of the food purchased and the supplies issued to the kitchen and bakery gave a fair estimation of the average per capita consumption during the ten months period. The able bodied were fed in the main dining room, a small group was confined in the hospital, and about one-third of the whole group was not allowed to leave the wards at all. Certain variations were made for each of these groups. In order to show the effect of these variations on the nutritive value of the food provided for the different groups an estimate was made of the food served in the inmates' dining-room, in the wards, and in the hospital during two days of the visit (Saturday, May 24 and Sunday, May 25). The data secured from the kitchen records for the twenty-eight day period served to show the frequency with which certain foods were used as this was taken from the tri-weekly steward's issues.

In all cases the data are for the food furnished with no statement as to the amount wasted. A theoretical deduction of 10 per cent for waste would seem high in this case.

According to the steward's records covering the ten months period the food yielded per capita per day, 75

grams of protein, 60 grams of fat, 457 grams of carbohydrate, and 2,672 calories. These figures are rather low, but it is to be remembered that about 20 per cent of the population consisted of children below the age of 14. Calculated per man per day it approximated 85 grams of protein and three thousand calories, which may be regarded as a fair allowance for this class of people.

The most striking facts are the large proportion of both protein and calories that were furnished by cereal products and vegetables and the small proportion furnished by meats. It is unusual to find as little as 10 per cent of the total cost of food expended for flesh foods, yielding only 3 per cent of the total protein and less than 2 per cent of the calories. In American dietaries the average expenditure for meat is 33 per cent of the total which usually yields about one-third of the protein and 20 per cent of the calories.

The cereal foods supplied 58 per cent of the protein and 54 per cent of the calories. Of the amount spent for vegetables a very large proportion (16.5%) was used for canned vegetables, mainly corn and peas, while the cost of the fresh vegetables was low. In this group i.e. the vegetables, a mere readjustment of the expenditure might materially improve the nutritive balance.

The expenditure for milk and for the proportions of protein and calories yielded by it were liberal. However, as will be shown, the distribution of the milk was very unequal so that the major part of the inmates, those eating in the dining-room, were consuming a very unbalanced diet with too large a proportion of cereals and legumes and without the proper protective foods.

The system of feeding the inmates

*The full data of these studies are obtainable in a bulletin, "A Study in Nutrition of the Inmates of the State Training School, Winfield, Kansas," issued by the Kansas State Board of Administration, Topeka, Kansas.

provided three meals a day. The inmates were divided into three groups: (1) those men, women and children able to go to the dining-room, a total of 429; (2) those confined to the wards (164); and (3) those in the hospital (39). In the latter two groups a few able bodied inmates were detailed to act as assistants. The following was a typical day's menu in the dining room:

BREAKFAST			
Stewed raisins	Gravy	Rolled oats	Coffee
LUNCH			
Bread	Oleo	Peas and corn	
SUPPER			
Vegetable soup (tomatoes, peas and corn)			
Bread			Tea

Milk was allowed for coffee each morning and one gallon was served at each meal for the smallest children in the dining room.

For the wards the menu for breakfast and dinner was the same as that served in the dining room except that about eight gallons of milk were served in addition at each meal. In the evening only bread and milk (twenty-five gallons) were served in the wards. This liberal use of milk showed a marked influence on the nutritive value of the diet.

For the hospital group the food was very similar to that served in the dining room but there were many additions. Nine gallons of soup were furnished per day for thirty-nine people.

The influence of the more generous food allowance for the ward group appears in the following table. The difference between the average per capita consumption during ten months and the typical consumption among the inmates is also apparent.

The greater liberality of the diet on

were confined to the wards and hospital. In the food served in the dining room 87 per cent of the protein and 88 per cent of the calories were furnished by cereal products, including bread and seed vegetables; and 8 per cent of the protein and calories by milk. In the wards and hospital on the other hand 39 per cent of the protein and 31 per cent of the calories were furnished by milk and 58 per cent of the protein and 64 per cent of the calories by cereal products and seed vegetables.

Almost all of the nutrients supplied by the cereal products were yielded by white flour, chiefly in the form of a

considerable improvement in the diet. The figures show an increase in the amount of all animal food served from 12.6 per cent to 20.1 per cent; an increase in the milk allowance to about one and one-third pounds per person per day and a decrease in the cereals from 54 per cent to 45 per cent of the total diet. The character of the vegetable supply was changed by the greater amounts of cabbage, tomatoes, and so on from the large garden which had been planted in the summer of 1919, but the seed vegetables were still used liberally.

Both groups were given sufficient food. No serious deficiency in the type

COMPARISON OF PER CAPITA FOOD CONSUMPTION IN THE FIRST AND SECOND STUDIES.

	10 months' period. (a)		1919, (b) Typical day (May 2).	Typical day 1920 (June 2).		1920. Typical day (June 9).	
	1919, grams.	1920, grams.	Dining room, grams.	Wards, grams.	Dining room, grams.	Wards, grams.	Dining room, grams.
Protein	75	98	66	83	84	85	90
Fat	60	88	38	60	92	75	60
Carbohydrate	457	463	424	421	476	385	467
Calories	2,672	3,042	2,309	2,561	3,394	2,880	2,773

(a) The figures for the ten months' period are higher, because the food for employees, which was more liberal, is included in this calculation.

(b) Record for May 25, 1919, omitted from this comparison, being Sunday, on which day the diet was always more liberal.

very light, soft, unevenly baked bread. The only leafy vegetable furnished the inmates was cabbage, either fresh or in the form of kraut. The low fat content was due to the fact that so little meat was used, that so little fat was used in cooking, and that oleomargarin was served at table only once a day and less than one-third ounce per capita allowed then. There was a very objectionable monotony of

or quantity served in the dining room was shown to result from the uneven distribution of food between the wards and the dining-room as had been the case in 1919. The milk allowance for both was liberal, though it was still unevenly distributed. Meat was given in larger amounts and more frequently. About one-fifth of a pound of meat per person per day was now allowed. The fat had been increased from sixty grams to eighty-eight grams per day. The comparison of the food consumption in the two studies is given in the above table. The more liberal diet in 1920 is obvious as is the more equal distribution of food between the two groups. The day May 25, 1919, is omitted from this table as no Sunday was included in the survey in 1920.

While it may be said that the dietary was considerably improved the conditions were still far from ideal. The same monotony of diet prevailed, the same foods were still used for the noon and evening meals and these foods were still too soft.

These results, especially when taken in connection with the weight findings seem significant as showing what may be accomplished under scientific management.

In May 1919 all inmates who could be placed upon the scales and who could stand upright were weighed and

SUMMARY PER CAPITA FOOD CONSUMPTION.

	May 24, 1919			May 25, 1919		
	10 Months Period	Dining-room	Wards	Dining-room	Wards	
Protein	75 grams	66 grams	83 grams	102 grams	98 grams	
Fat	60 grams	38 grams	60 grams	53 grams	60 grams	
Carbohydrates	457 grams	424 grams	421 grams	460 grams	536 grams	
Calories	2672	2309	2561	3325	3081	

the 25th was due to the fact that it was Sunday. Larger quantities of beans were provided; also, gingerbread, crackers, and a cornstarch pudding were added.

The detailed data showed how large a proportion of the protein and energy was provided by the legumes, white wheat flour and other cereal products with the great lack of protective foods. It was, however, by studying the distribution of the foods between the dining-room and the wards that the deficiency became most apparent. While a fair amount of milk was provided, by far the largest part of it was consumed by one class alone, that is the low grades who

diet, due not only to the use of the same foods on successive days but to the use of the same foods at successive meals. It was the custom to use the same foods, already monotonous, for the noon and evening meals. There was an entire lack of hard foods requiring mastication.

Suggestions for improvement based upon the results of these studies were made to the management. At about the same time in the following year a second visit was made to the institution and the records again studied, using the same methods as before.

It was found that many, though not all of the suggestions had been adopted and that as a result there was

their heights measured. A weight chart was compiled which included the normal weight for each individual, the weight at the stated time, columns for each of twelve successive weighings, the occupation and the general condition of health as estimated by the attendants.

A certain number of those weighed and measured were so dwarfed, mis-

The ages of the inmates varied from five months to 71 years. For purposes of study they were classified by ages into four groups: 0 to 15 years, 16 to 30 years, 31 to 50 years and 51 years or older. There is no way to determine how much the class of people examined in this instance may normally vary from the average standards. No attempt was made to

As a whole, the appearance of the inmates indicated malnourishment. The emaciation of many, and the soft unwholesome fat of others; their sallowness, the prevalence of constipation, the history of outbreaks of pellagra, and the general ravenous behavior in the dining room all indicated wrong feeding. The steady decline of the height-weight-age ratio with the age of the inmates is one of the most significant findings.

The age group "0 to 15 years" showed 16 per cent were more than 10 per cent below the average; "16 to 30 years" showed 42 per cent below the average; "31 to 50 years" showed 54 per cent below the average; "50 and over" showed 68 per cent below the average. The average for the entire group showed 43 per cent who were more than 10 per cent below the average. It would be presumptuous to attempt to explain this without a more detailed inquiry into actual physical conditions. However, three probable factors may be mentioned for the suggestive value they may have: (1) continued residence, eating year after year of a monotonous, unbalanced diet; (2) the cumulative effect of uncorrected defects, particularly bad teeth; and (3) the cumulative effect of chronic toxemia from constipation.

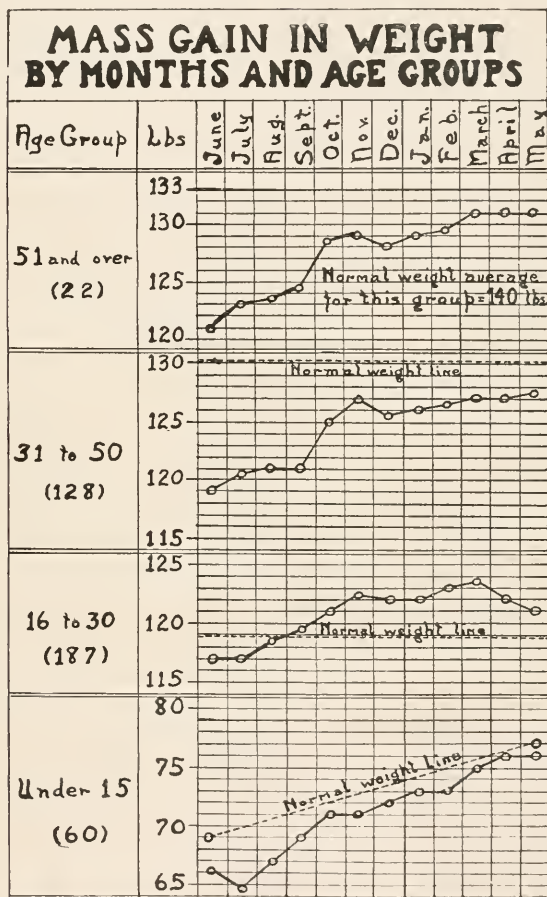
1920 Weight Findings

At the end of the year those individuals whose records included twelve consecutive monthly weighings were tabulated. Of the 467 who were weighed in 1919 only 397 showed no break in the weight record. These were grouped according to ages as at the beginning of the study.

While there are some irregularities and some unexplained showings, one may on the whole say confidently that the weight of the entire group was markedly affected by the changed feeding and that their general condition was for the better.

The actual mass gain was most marked in the group which showed the greatest departure from the normal at the beginning of the study, viz. the oldest group. This group of 22 individuals gained an average of 10 pounds each during the year and lowered their percentage if individuals who were more than 10 per cent under weight from 63 per cent to 50 per cent. However, this group did not then approximate average normal weight of 140 pounds each, when this group averaged only 121 pounds at the beginning and 131 at the close (Plate 1).

The age group, 31 to 50 years, com-



The Kansas State Training School nutritional study was checked at the end of one year and the results of the improved dietaries are shown in the graph.

shaped or deformed that their height-weight-age ratio did not fall within any table of averages. These were classified by the term "dwarfed" and were not figured in the averages. Many could not straighten up, so habitual has this stoop become. For this reason the heights are generally too low. This gives the height-weight ratios better showing than deserved.

make a detailed physical examination of any individuals. There seemed to be little active illness, though constipation was said to be prevalent. From the cursory review as they passed across the scales, the investigator received an impression of many adenoid facies, many cases of strabismus, neglected refraction and a very striking need for dental work.

prised 128 individuals of whom 62, or 48 per cent, were more than 10 per cent underweight at the first weighing. This was lowered to 52, or a total of 40 per cent. This group gained an average of $8\frac{1}{2}$ pounds each but still lacked $2\frac{1}{2}$ pounds of reaching a normal average. These individuals should have averaged 130 each according to their respective heights and ages whereas they averaged 119 pounds at the beginning and $127\frac{1}{2}$ at the end.

The age group, 16 to 30 years, comprised 187 individuals who had gained an average of more than six pounds each by March but lost an average of one pound each during April and May. The percentage of underweight individuals in this group was 31 per cent at the beginning and 26 per cent at the close, calculated on a basis of no gain in height. Since some of this group probably did gain in height their percentage gain over the normal or expected gain would probably have been small.

The youngest group, 15 years or younger, gained an average of ten pounds each. These were all growing children and any estimate of actual improvement in their condition must

take into consideration their expected rate of growth. Accordingly the expected gain in both height and weight was figured for each child and the result compared with the final figures at the end of the year.

This age group in the beginning, numbered 128 individuals who showed only 16 per cent under weight. Only sixty of these completed the year's weighings and this sixty must have been the physical culls as 40 per cent of these were underweight at the beginning as against 16 per cent for the entire age group. The better children were probably returned to relatives and friends or broke the weight record by visits and paroles.

Allowing for average gain in height and weight, this group showed 20 per cent who were more than 10 per cent underweight at the end of the year as against 40 per cent at the beginning. There was a group of 8 individuals in this class who were excessively overweight, averaging 20 per cent overweight per individual. This brings up the general mass average rather more than the entire group merits and leaves them close to a normal mass showing.

ty-seven glasses and one paper cup were examined in this way and the germs identified. This was considered a fair test under normal conditions of practice.

For purposes of contrast a swab from a glass and one from a paper cup were developed in a glass petri-dish, a definite separation existing between the two. The swab from the glass developed 150 colonies; the swab from the paper cup which was found on the top of the stack on the fountain developed only nine colonies.

Of the twenty-seven glasses and one paper cup cultures only two cultures from glasses were sterile, and these were found only at fountains where the dispensers did not wash the glassware during rush hours. Several glasses and the paper cup showed presence of dust-carried organisms only, the harmless type of germs. Germs of putrefaction were found on two glasses, and on two other glasses both putrefactive and dust-borne germs were found.

On nine glasses disease germs were actually found either alone or mixed with dust-borne or putrefactive germs. These were of two types commonly found in noses and throats of persons suffering with sore throat or bad cold.

Main facts brought out by the investigation were: Forty per cent of the glasses examined were actually infected with disease germs. An additional twenty per cent were really dirty or infected with germs of putrefying matter. It was really safe to drink from only the remaining forty per cent of the glasses and less than seven per cent of them were sterile. The paper cup was found to have on its rim only a small number of harmless germs though it had been standing on the back-bar for an indefinite period. Sterile glasses were found only at fountains where a negro was employed during rush hours to wash the glassware in hot water and soap.

School health work has accomplished the following in Randolph County, Ind.: Over 80 per cent of the 5,846 school children have been medically examined; a nurse has been assigned to see that defective children receive medical aid; twenty-three weighing and measuring scales have been put in the schools and over two hundred underweight children are given milk. The county superintendent reports only four deaths during the entire school term and that no school was closed during the term for contagious disease.

Dirty Glasses As Germ Carriers

INDIVIDUAL paper cups or glasses thoroughly washed in hot water and soap are the only guaranty to a germ proof fountain service, investigation in Montgomery, Ala., by the state board of health has revealed.

In the old days when the idea of disease germs on drinking cups was a novel one, it became the custom to drink left handed or near the handle in an effort to avoid contamination. The collapsible drinking cup became a favorite at picnics and was even passed around among friends, "For," states C. A. Abele, director of inspection, Alabama state board of health in *The Soda Fountain*, "what were a few germs between friends?"

It is estimated that there are approximately one hundred thousand soda fountains in the United States which give opportunity for the wide spread of disease. Most important in transmission by this means are common colds and tuberculosis.

The evolution of glass washing at soda fountains is interesting. Formerly the dispenser "washed" his glasses behind an ornate marble fountain in a bucket under the counter in which the water was changed once daily. As business grew and fountains were improved washing basins

were built into the fountain; later a continuous flow of water was installed; still more recently the pressure spray was introduced. In the most modern fountains, however, glasses are now sent to the rear for scrubbing after each use.

To gain first hand information as to contamination from soda fountain glasses the Alabama state board of health recently investigated conditions in Montgomery. They found all sorts of fountains, some using soap and hot water to clean glasses, some using metal drinking cups, some equipped with sterilizers, some with glasses merely rinsed and flushed over a spray, and one fountain which occasionally used paper cups.

Procedure was for two men to enter the soda shops during rush hours in the afternoon, quietly explain their business to the proprietor, and request permission to culture several glasses from the bar—ready for service of drinks. Cultures were taken from the rims of the glasses with sterile cotton swabs. These swabs were then streaked on culture media on which the germs might grow, the plates were numbered and brought to the laboratory for incubation, and the germs examined the next day. Twen-

Health at Columbia Institution for the Deaf

Not Chance But Systematic Health Insurance Method Safeguards this Student Body

By PERCIVAL HALL, PRESIDENT, COLUMBIA INSTITUTION FOR THE DEAF, WASHINGTON, D. C.

THE health record of students and pupils at the Columbia Institution for the Deaf has been a remarkable one. For a period of over thirty years, during which the number of pupils and students has varied from 135 to 180, there have been only two deaths caused by disease. What has insured good health among the pupils of the institution? It would seem that this record may be due to a number of factors, almost all of which may be easily put into operation in any similar educational plant.

The first item of insurance of good health worthy of mention is location. The Columbia Institution for the Deaf is situated on the outskirts of Washington City. It is easily reached on short notice by our physician and by special delivery of necessary medicines. Our grounds, however, approach in extent and varied features a country estate, comprising 103 acres of lawn, farmland and forest. The site combines, therefore, the advantages of opportunity for prompt medical aid with good air and ample room for recreation.

The second point of insurance is our water supply. For many years the city of Washington has filtered most carefully and tested bacteriologically all the water used by the population of the city.

The next insurance item is the milk supply. The small amount of this product purchased by the institution is pasteurized. Practically all that is used, however, is produced upon the farm, which is part of the institution grounds. A herd of tuberculin tested cattle is maintained, milking is done under sanitary conditions, which includes medical inspection of milkers, weekly bacteriological tests of the milk produced, careful sterilization of cans, bottles, and all utensils, the prompt cooling of the milk, and its use within twenty-four hours after production.

Health Habits Fostered

The next general item of insurance may be put down as regularity of habits. In our institution, which is composed of a primary and grammar department for younger pupils and a

preparatory and collegiate department for older boys and girls, a regular program is always in force. The younger children are sent early to bed, are required to clean their teeth properly and regularly, to bathe at regular intervals, to eat at fixed times and to study, play, and work under supervision. Enough teachers and officers are employed to give much personal attention to every pupil. In the higher department also, regular hours of study and recreation are required, lights are turned out at definite times and all absences from recitations are followed up promptly so that medical attention may be given at once in needful cases.

The next point of importance in the insurance of health of our student population is the requirement of physical exercise. Frequent setting up drills are required of the younger pupils. Baseball, basketball and other games are encouraged and even the smallest children play outdoors for a considerable period every day that weather permits. All of the students of the collegiate department, unless excused for some special reason by our physician, are required to take regular exercises throughout the scholastic year. Football, baseball, basketball, tennis, track work, wrestling, and swimming are encouraged in every reasonable way. Two swimming pools are available for the use of students. Everyone must be engaged either in one of the regular sports or in physical exercises under the general control of athletic directors. Good sized athletic fields with a track and tennis courts are available for outdoor exercise during all but the coldest months, and two gymnasiums give opportunity for indoor work throughout the year.

All of these general items of health insurance have no doubt a great influence upon the general physical condition of our students and pupils. It may be of interest for the readers of *THE NATION'S HEALTH* to know of more particular methods by which the students of the Columbia Institution for the Deaf are kept free from illness.

The first of these particular means is a thorough physical examination

upon entrance. Children entering the lower department are given a careful physical examination by our physician, a specialist in children's diseases. This is supported by statements of parents as to diseases already passed through, accidents, etc. The same method is pursued with those admitted to the collegiate department, except that even before admission physical examination blanks are sent to the schools from which students come, and are there filled out by the physician in charge. These blanks require a full statement of height, weight, general and particular physical condition. The examination after admission is also a careful one.

All pupils and students who have not been vaccinated against smallpox and inoculated against typhoid are given prompt treatment upon admission to the institution. Where teeth, throat, ears, nose, or eyes seem to require special attention, students and pupils are sent to specialists for further examination, prescription, and treatment. A permanent record is kept of the health of every student and pupil and in case of any serious disturbance a record of this is made together with the treatment given by the physician.

Physical Index Kept

A weight chart is kept for every student and pupil. The children in the Kendall School are weighed each week by the teachers, while the students of Gallaudet College are required to weigh themselves under supervision of athletic instructors. When an unusual change in weight appears through the chart, the attention of the attending physician is called to it and special diet is prescribed by him in necessary cases.

Each dormitory is supplied with a dispensary containing simple remedies and necessary equipment for the treatment of cuts, burns, and minor ailments. Whenever dangerous looking throats are discovered or eruptions appear, prompt isolation is employed. Rooms for this purpose are reserved in each dormitory.

Special attention is given to the teeth. A dental room is outfitted with modern appliances and is open two af-



Columbia School for the Deaf. (1) Chapel. (2) Young men's gymnasium. (3) College men's dormitory. (4) Kendall School and small boys' dormitory. Good air, ample room for recreation, a régime that is regular without being stereotyped, provide a good health background. Medical aid when needed, but prevention chiefly, constitutes the highly effective health insurance here.

ternoons a week under the charge of a regularly attending dental surgeon. An effort is made to give each student a careful examination and necessary treatment at least once during the scholastic year.

Talks on health, diet, care of teeth, are given to the parents of the younger children from time to time and special courses in physiology and hygiene are required of all students in the collegiate department.

A varied but simple diet is supplied to students and pupils. A quart of fresh milk is allowed to the children of the Kendall School daily, but tea and coffee are not served. From time to time expert advice is sought in

regard to menus, quantities served, and methods of preparation, from authorities outside of the institution.

Serious Illness Unusual

It may be thought that very especial attention must be given to the ears of our deaf pupils. This, however, is not so in most cases. The general condition of the ears of those born deaf is often excellent. Where deafness is caused by spinal meningitis or falls and the auditory nerve is affected there is usually no difficulty in the middle ear.

There are of course some cases where the middle ear shows more or less chronic inflammation. Simple

douches take care of these usually. Only once in a great while is any operative action necessary.

With the health insurance thus briefly outlined serious illness is most unusual among the students and pupils of the Columbia Institution for the Deaf. Nothing that is attempted in this line cannot easily be duplicated elsewhere, except perhaps the liberal provision for room and uncontaminated air. Our chief endeavor, and it seems to have been successful so far, has been to prevent sickness; and with reasonable care such an attempt should meet with success in any residential institution for young people.

Massachusetts Provides for Health in Prisons

BY SANFORD BATES, COMMISSIONER DEPARTMENT OF CORRECTION, BOSTON, MASS.

THE Massachusetts department of correction has general management and administration of the five state penal institutions and certain powers of inspection and recommendation with respect to the twenty-two jails and houses of correction maintained and administered by the counties.

State institutions comprise state prison at Charlestown, for felons (so-called) serving a maximum and minimum sentence of not less than two and one-half years; Massachusetts reformatory at Concord Junction, for younger offenders of ages averaging between 21 and 22 years, sentenced on an indeterminate basis of not more than two and five years; reformatory for women at Framingham, receiving women for all offences and on both the indeterminate and the determinate sentence basis; state farm at Bridgewater, primarily for misdemeanant prisoners of the vagrant type. Included at this institution are separate departments for the criminal insane, for the defective delinquent, for the drug addict, and for the aged and infirm; prison camp and hospital at West Rutland, composed of a tuberculous hospital for prisoners from both state and county institutions and a camp section in which are employed able-bodied prisoners who can be trusted to work in the open air, from both state and county prisons.

The state prison and the reformatory for women are primarily industrial institutions, combining practical instruction in industry with school instruction and physical education. The principal industries at Charlestown are the making of shoes, automobile license tags, aluminum ware, brushes, underwear and clothing; and at Framingham, flags, needle trades and knitting.

The Massachusetts reformatory provides trade instruction in schools devoted to teaching plumbing, tin-smithing, sloyd and printing, and maintains a substantial textile mill and furniture industry. A graded school, military drill, complete hospital regimen and a mark system leading toward parole are outstanding features of this institution.

The state farm and the prison camp and hospital both place emphasis on out-door work as a therapeutic and remedial treatment for men broken down by excess or undue confinement.

In addition to supervision and management of these institutions, the department of correction maintains one of the most complete and scientific bureaus for criminal identification in the country with about one hundred and twenty thousand separate fingerprint and Bertillon records.

The supervision of paroled prisoners from state institutions forms an important part of the work of the department, there being five male and two female agents engaged in this work. The distribution of aid to discharged prisoners is cared for by a male and a female agent. A home department, concerned primarily with the alleviation of unfortunate home conditions and forming a basis of communication between the prisoner and his family, is an important branch of the work.

Other activities of the department include gathering, compilation and distribution of prison and criminal statistics, supervision of prison industries in both state and county institutions and distribution of the products, inspection of county prisons, purchase of certain supplies for joint use of institutions, and a general clearing-house for the public on matters affecting penology and criminology in the state.

The Board of Parole connected with the department has as its function the granting and revoking of all paroles from state institutions. It also sits as an advisory board of pardons to the Governor and council, two members of this board of three being appointed directly by the Governor.

Treat Mental and Bodily Ills

Principles underlying the work of the department of correction and its institutions today proceed upon the modern theory that all efforts along penological lines should be made toward the reformation of the individual and the consequent elimination of criminals from the body politic. It is well to bear in mind that the prisons today are obliged to work with those individuals who represent failures of all other agencies and departments of government, both private and public. Penologists look with favor upon all kinds of community effort to minimize the causes of crime, approve the extension and thorough operation of the probation system, and attempt to put the operation of

their own institutions upon the basis of scientific social work with a view to accomplishing the almost impossible task of reforming those individuals with whom society has failed.

There are those in the world today who sincerely believe in the efficacy of punishment, and claim that the more severe it is the better for society as a whole. There are others equally sincere who claim that society has no right to inflict punishment upon its unfortunate or unprivileged members. Probably no science has progressed so far in the last seventy-five years as has the science of penology. The old doctrines of retribution and punishment as a deterrent are fast losing their advocates.

It is coming to be generally recognized that—first, all the guilty are not caught and punished, and second, that a very real inequality exists in the physical equipment, in mental adequacy, and in environmental and hereditary influences which have a real effect upon criminality. These two ideas are leading people to take the generally adopted view which substitutes individualized remedial treatment of the prisoner for wholesale and indiscriminate punishment of the criminal. The prison today sets itself to the task of eliminating from its population all those persons whose problems can best be handled by other agencies. The insane, the juveniles, and the feeble-minded, but lately considered as criminals, are today diagnosed as sick persons in need of treatment. We would not at this time claim that there are not whole-minded, able-bodied, deliberate criminals who need punishment and from whom society needs to be protected. With these people we shall do our best by means of steady employment, school instruction, religious inspiration, and a logical scientific penal system, to turn them into law-abiding citizens; but our plea to the citizenship of the commonwealth is that before consigning a man to prison the community should see that it has discharged its obligation to see that every boy and girl, man and woman, shall have a healthy body, normal mental equipment, a fair chance to succeed in industry, and an appreciation of the privileges of American citizenship.

We realize that prisons are not the best places in the world. We under-

stand the natural aversion of courts and relatives to have offenders go to prison, and we understand the great possibilities of contamination and evil influences which must inevitably sur-

round an inmate, but we confidently expect the cooperation of all our citizens in our endeavor to so man and equip our penal institutions with competent, interested officials and officers

that they may fulfill the modern function of a reformatory hospital and become less and less the forbidding dungeons which they have been in the past.

Organic Methods of Child Education

Fitting School to Child Allows For Higher Mental Development

BY MARIETTA JOHNSON, EDGEWOOD SCHOOL, GREENWICH, CONN.

THERE is a tendency to measure success in education by the size and cost of buildings, perfection of equipment, and learning of the teaching staff. In industry and education emphasis has been placed upon the thing done rather than upon the doer; the product has become of greater importance than the producer. We do not wish to minimize the value of the building, learning of the teaching staff, equipment, or achievement of the pupils, but we do wish to emphasize the all-round life of the student as he grows in and through these conditions. The question then becomes not what does the child know nor what can he do but what does the knowing do to the child? In other words, we wish to place the emphasis on the human element rather than on the material element.

The school to be successful should make its standard one of meeting the needs of the growing organism of the child at each stage of development, and its success should be measured by its ability to do this. Society and the school owe every child guidance, protection, stimulation, direction, control, and inspiration up to twenty-two or twenty-three years of age when full

physical growth is attained, and this, whether the child is gifted, superior, or inferior. The more limited, the more undeveloped, the more difficult a child is the more he needs the manifestations of the school. The individual needs and growth of the child are superior to the curriculum. The great trouble with adults is an obsession to get a certain something that is within them over to the child. There is little concern with what his feelings, thoughts or desires may be, or with what his actual needs may be.

What Does Child Need?

Many years ago I was teaching the state normal schools of Minnesota. At that time I was very proud of the way in which six-year-old children could be taught to read through four first readers in three months. Without thought of what this work might do to the child I was proud of the results I had obtained. One day my superintendent handed me a book saying, "Unless education takes this direction there is no incentive for a young man to enter the profession." The book was Oppenheim's *Development of the Child*. On reading this book I found to my dismay that

nearly all of those things I had been doing with such pride were, according to Oppenheim, in direct violation of the nervous system of the child and were thus a hindrance to his growth. Thus began my education for the education of the child, and the problem has ever since been constantly before me.

Later, when my own son was old enough to have something in the way of an educational program we moved to Fairhope, Ala., a little town on the eastern shore of Mobile Bay across from Mobile. A school was opened in a little cottage, my home, with my son and a few neighbor children as pupils. No tuition was charged because I was so earnest in my desire to approach education of children from this new point of view that I should have been willing to pay children to come. My whole attitude now became one of seeking to know what the organism of the growing child needed rather than trying to make the child meet any demands of the school.

Education is life. Growth of the educational process must be life-giving—life-giving to the body, life-giving to the mind, life-giving to the spirit. The questions now constantly in my mind were: What are the needs of the body; what are the needs of the mind; what are the needs of the spirit; how may the school meet these needs? No one knows what these needs are, and perhaps no one ever will know, but it remains the supreme duty and privilege to study to know and to try to meet these needs.

This is what our school at Fairhope, Ala., is honestly trying to do. There are a few needs of the body which perhaps all will agree upon. The child should have freedom of action. The children should not be crowded together in a room. The school should substitute tables for desks, and no teacher should be required to have more than twenty children under her care. The order of the development of the nervous sys-



To fit the school to the child is the aim of the Fairhope school. Kindergarten children are here at work in the garden.



Pole vaulting and similar field activities keep the high school boy at Fairhope interested.

tem of the child should not be violated. Therefore, no formal work should be given to children of six or seven years of age. Children are interested in materials and in action and should be allowed to make and use things. Young children need a great deal of creative hand work, singing, dancing, games and play. Self-prompted creative occupations rather than book work should constitute the greater part of the school program for all children. The play instinct of the young child should be given freedom to function in joy.

There are two phases of play, one for exercise, the other for an end. It is often felt that play is work if it is done for an end, but in reality a thing done for an end is play, if the end is the child's. If the child does a thing for an end that is not his own, but one imposed by an adult, then it is work. Play is the child's work. Play is desire for the end and for the activity.

From its small beginnings, the school has grown year by year. The school at Fairhope now occupies ten acres of ground, has nine buildings and an enrollment of over two hundred pupils from kindergarten through high school, and a training school for teachers. It is free to the children of the town and is conducted under public school conditions in the hope that it may through its experiments and demonstrations be of service to the public school system. The school also has a boarding home for non-resident pupils, drawn largely from the North.

Children are grouped according to chronological age. We provide for each group to the best of our knowledge and ability occupations which preserve the health of the body, the intelligence of the mind, and the sincerity of the spirit. The kindergarten child is fluid, unformed, immature. His nervous system is not co-

ordinated and is changing rapidly. Great care is taken to provide an environment that will not repress, inhibit, or over-stimulate him. So no formal work is given. The first thought is, what is the child's interest? Our program for the kindergarten child consists in music, creative hand work, stories, games and free play. Music—rhythms, singing, dancing, games, dramatics—is a vital interest. Stories are used to satisfy the inner desire of the child, not for the sake of language, nor for the sake of re-telling to the teacher. If the child gets from the story imagination, dreams, these cannot be retold. We try to leave the child his dreams.

At the age of eight we teach the children to read and write, but no special attainment or achievement is required for so-called promotion. The child who is constantly marked and graded and measured often develops an inhibiting self-consciousness which may become paralyzing in later life, or he may become wholly externalized.

Children of the same age work and play together even though some of

them do very much less than others. As soon as the children learn to read their stories take the form of stories of geography, history, literature, the teacher supplementing the reading with charts or maps or pictures and making the work as vital and interesting as possible. Later, geography, history and literature stories are dramatized and worked out in the shop, in the sewing room, in the arts and crafts. When in the class room, the group sits around a table working, studying and talking, but a great deal of time is spent out of doors carrying out various school projects, gardening, walking through the woods and hunting out plants, birds and insects, swimming in the bay, hiking and camping and becoming acquainted with the great outdoor world and enjoying life in it. At the close of the day the children are tired after a full, wholesome day of happy play and work, and go home with no lessons assigned and home tasks required. The assigning of tasks is an intrusion upon the child's rights and thus tends to undermine his sincerity and morality. The child is a reacting organism. He reacts to his environment, and should be allowed to react to his home environment without any burden from the school. When home tasks are assigned it often tempts the child to appear to know when he does not know, which is undermining to his sincerity, the only basis for true morality.

As the child grows older the program becomes more complex and definite with a large purpose, but the effort is always made to keep it the child's purpose.

We call our groups "life classes" because we are making an effort to provide an environment in which children may live as wholesome and in-



Junior high school boys off for a hike and camping trip.

telligent and happy lives as possible, and if we can succeed in this children will desire information and instruction, for no one can live an intelligent life without adequate learning. We try to provide for the growing organism of the child, an environment which preserves unselfconsciousness. Selfconsciousness is a sort of fear and fear is a kind of death. Education is life. Therefore, to be educational we must preserve as perfect an unselfconscious expression as possible. Life is a constant awakening, and if some child is slow in his development and does not seem to learn as quickly or attain a skill equal to that of his fellows, that does not make a change of grouping necessary. The teacher makes an effort to give him any personal attention that may seem necessary, or in case a particular child shows unusual ability, this does not mean grouping beyond his years. The prolonging of childhood is the hope of the race. We make an effort to give the child more work rather than place him with older children. He should have intelligent work which challenges his powers, but this should not subject him to the strain which grouping with older children would necessitate. Often the social and sex consciousness of the younger children is stimulated by grouping with older children. The child needs to work and play with his own group.

At the age of fourteen, children in the Fairhope school are entered in high school. Life itself indicates the period of childhood to be up to about fourteen, when youth begins. Youth needs the companionship of youth, and that, even though a certain youth may not have had all the work of the preceding years. The adolescent period, from fourteen to eighteen, is one of strong, definite instruction. The youth can do more work, perhaps, than at any other time, but should not work under strain.

Working for grades, marks, promotions to please the teacher or to escape punishment is an insincere experience which may prevent true moral conceptions. All conceptions grow from experience rather than through instruction. Promotion is an externality in the educational process, and, instituted as a convenience, tends to fix the curriculum and transcend the individual needs of the youth. It is an outward reward for learning, while the real reward for learning consists in the knowing. External rewards make for arrogance and insincerity. We give our high school boys and girls four years of serious, earnest work in science, mathematics, history, literature, languages, continuing the manual training, arts and crafts, sewing, cooking, gardening, and athletics. The motor minded children are given the same opportunity for development and self-prompted creative activity that children of a different mental type are given.

Education Is Life Itself

We believe in co-education, and, while occasionally the attraction between boys and girls interferes somewhat with thorough academic work, we believe that these attractions are educational. The adolescent period has not been understood, and its problems have not been met. There is a wide field for investigation and experiment in this period of growth. The young people of this period are more or less uncertain and are full of surprises for both teacher and parent. Many times the young person who has been tractable as a child is quite irritable as a youth, and sometimes the child who has been most difficult becomes quite amenable to direction at this period. Much of this is due to growth itself and adults must have patience and try to meet this with sympathy and understanding.

We try to get our high school boys

and girls to cooperate with us in not giving or accepting an invitation for any social affair on Monday, Tuesday, Wednesday and Thursday nights, and then we cooperate with them by not assigning any tasks on Friday nights, leaving them free until Monday morning and permitting them to come to school with clear consciences and light hearts, even at the risk of empty heads. We are not afraid the children in high school will not "cover the ground."

Our whole effort is to meet the needs of the growing organism at this period of development. If this is intelligently done we believe that every normal youth will develop power and skill and information during the period from fourteen to eighteen which will enable him to meet the requirements which the colleges set up. We believe that the colleges all over the country would be glad to abolish entrance requirements if they were assured that the young people of the country had had this developing process during the preparatory years, and we might add that the preparatory schools would be better able to give the young people the right process for growth if the colleges did remove their requirements and frankly accept these young people because of their maturity and need for the college process.

Education is life—a larger, better life. This is the immediate end of the educational process. The school should not be a preparation for life, but should be life itself. In the measure that the primary school provides activities and occupations which meet the needs of the growing child, it is educational. In the measure that the high school provides activities and occupations for the youth which secure this human development in the youth, it is educational. In the measure that the college meets the physical, mental, and spiritual needs of these young people, it is educational. In the measure that an institution meets the needs of the growing organism at every stage of the development of the child, it is educational.

Why do we force the young to spend their childhood in preparation for adult life? Childhood is its own excuse for being. The child must live in the present moment. He must live as wholesome a childhood as it is possible for us to give him. As he grows older, his span of interest increases, and naturally he will look into the future, but this we should not force upon him. The present is too precious to destroy by the intrusion of future ends.

If teachers could be relieved from



An English country dance.

the supervisory system, from the pressure of curriculum and the "rate system" of those in authority, if teachers could be trusted and helped to live frankly with the children, giving them as beautiful and complete a present as it is possible to provide, the profes-

sion would attract to itself many superior minds that are now being drawn off into other professions. The work of the teacher would be more creative, and the reward would be confidence instead of fear, joy instead of despair, success instead of fail-

ure, as is so frequently the case.

If we sincerely study the needs of the growing child and make an earnest effort to meet those needs of the growing organism at each stage of its development, then we can safely trust results to life itself.

A Nursery School Where Children Learn to Live

THE fault with our educational system has been that children have been made to conform to a set formula; that they have been taken and planted in a grownup environment; that they have been surrounded with protection to such an extent that free development of their own powers of thinking has been greatly deterred.

But the error is not wholly that of the school. In the home the child is too often helped by wellmeaning adults. If he falls down, instead of being allowed to use his own ingenuity—to exercise his own muscles in rising, a too willing older person picks him up and lavishes on him uncalled for sympathy. If the mechanism of some toy balks and the child gives way to spontaneous crying or unintelligent banging, some one hastens to show him the right way. He learns then by imitation, from an outside source, not through his own effort at thought and experiment.

The solicitude of grownups at home and school greatly handicaps a child. This handicap is further intensified in the upper grades, in high school,

and even in universities where too-willing instructors, learned in the knowledge of the pioneers of their field, facilely spread before the student the result of others' thought. The individual orders his life by accumulated knowledge, custom, habit. Mental flabbiness is seen in government, in business, in social relations. Tragedies are caused not so much by external circumstances, as one likes to imagine, but by inability thoughtfully to meet crises. The history of crime, of suicide, of tragedy lies in this.

Thus, the establishment of a Nursery Experiment School for children from eighteen months to three years in New York City by the Bureau of Education Experiments is a step in the direction of developing an intelligent healthy citizenry.

Fortunate are the children in this school. Not only is their regime carefully worked out as to play and social contact, but their physical care, food and sleep, is a matter of detailed attention and daily study. Each child has a chart on which the teachers, who also take care of the children, note the physical and social characteristics of the days—these being written up in a weekly summary. Shortly after entrance each child is given a thorough physical examination by the physician of the Bureau staff and recommendations are made to parents and to the nursery.

The physical program of the nursery includes taking stripped weights the first day of each week and measurements once a month. Stress is laid on bodily control, on teaching the child to feed and dress himself, on the use of play apparatus, and the development of social contact.

In every phase of the school's activity the children are encouraged to use their own initiative to aid in dressing themselves, to feed themselves, to

climb stairs, to adjust their wants to those of their playmates. Harriet M. Johnson of the Bureau says:

We conceive our problem to be building up an environment and developing a procedure which will not only give children an opportunity for the full exercise of their physical powers and for real adventure, but which will also look toward the growth of these impulses into directed and organized activities. Beyond this we are opening up to them the world of social contacts and social relationships, and it must be remembered that this is the feature of our experiment most needing careful consideration. Taking children under three from their homes and placing them in a group of their peers demands from them fundamental adjustments. Whether or not those adjustments are wholesome and contribute to the health of their emotional life depends in part at least upon the way they are introduced into the activities of the group. We believe that at first children must be protected from too close social contacts, that their individual interests must be allowed full scope, and that little by little their participation in activities that are common to all the children will integrate them with the least possible amount of strain and friction.

To enable its 400 medical students to maintain a high health standard, Northwestern University is inaugurating a plan of constant supervision. The regime will enable students to study, work and live better.



In the Nursery Experiment School the young child is given opportunity for testing his own powers. Climbing constitutes for the two year old one of life's great adventures.



A board, nails, and a hammer are giving Jimmie a lesson in sustained interest and fine muscular coordination.

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Nursing Organization As Developed in Toronto

**Maintains Harmonious Working Relationships
And Equitable Distribution of Service**

BY CHARLES J. HASTINGS, M.D., MEDICAL OFFICER OF HEALTH, TORONTO, ONTARIO.

TORONTO appointed its first "City Nurse," a tuberculosis nurse, in 1907 but did not begin to develop the service until 1911, the régime of the present Health Officer having begun late in 1910. It is possible to trace a few unchanging policies throughout the development of the division of public health nursing, but the routine duties of the nurses have been subject to more or less constant change.

The director of the public health nursing, Miss Eunice H. Dyke, R.N., has been responsible to the medical officer of health rather than to medical specialists, teachers, or social workers. Every possible contact has been established with the homes in order to bring the resources of the community to the homes, and cooperation has been established with public and private agencies with that end in view. Without confining their efforts to selected age groups or diseases, the public health nurses are busy removing, or helping others to remove obstacles to the health of individuals.

The following outline of the organization of the Division on November 1, 1922, includes only those details which determine or explain the policies of the division at that date.

* * * * *

Toronto has a population of 530,000 and an area of thirty-two square miles. For the administration of medical, dental and nursing divisions, the department of public health has

The nurse as the pivot of public health service is well exemplified in Toronto where from center to periphery of departmental activities nursing contacts are made the basis of correlating relationships.

Full reciprocity is maintained between the Department of Public Health Nursing and other community agencies, and no exigency of individual service is allowed to endanger future cooperation; nor is one service permitted overdevelopment at the expense of another.

The district superintendents, affiliating through the Director of the Division, afford a highly responsive medium through which the Medical Officer of Health finds easy expression for the general policies of the health department.

divided the city into eight districts with headquarters in the city hall. Six of the eight districts have their offices in police stations, and two in rooms rented from social agencies.

A medical officer is responsible through the deputy officer of health, who is director of medical service, for the health of each district. These district physicians have completed courses leading to the Diploma of

Public Health (D.P.H.) and are full time officers. Their duties are limited to the preventive aspects of public health work, treatment of the sick poor being provided through cooperation with the private physicians and the indoor and outdoor departments of the hospitals.

A director of dental services and thirty-five dentists giving half-time service conduct dental surveys in the schools in addition to twenty-six operative clinics in schools and four in out-patient departments of hospitals. The policy of the department is to urge parents to send their children to the family dentists, but if this is not possible, the public health nurses make appointments for the school clinics. The nurses make financial investigations for the hospital clinics when requested to do so by the dentists.

The public health nursing of each district is in charge of a District Superintendent of Nurses who is responsible to the Director of the Division of Public Health Nursing. The Director of the Division is responsible to the Medical Officer of Health.

Assignment of Staff

(A) Central office at city hall. The personnel consists of: Director of Division, 1; Assistant Director, with central office duties, 1; Special Supervisors, 5; Assistants to Special Supervisors, 2; (Special Supervision covers (1); prenatal, infant, and pre-school

hygiene with assistant for maternity homes and boarding homes for babies; (2) school services; (3) mental hygiene—with assistant; (4) venereal disease; and (5) tuberculosis and hospital extension service. Hospital extension service, 12; clerk in hospital, 1; clerks in central office, 2.

(B) Assignments to the eight district offices are indicated in the chart.

The volunteer clinic assistants have an independent organization with a superintendent and four captains. These officers are responsible to the supervisor of infant welfare nursing for the regularity and standards of work. A volunteer who is absent from her clinic without good reason is eliminated by her organization.

The other divisions of the depart-

ment are the Neighborhood Workers' Association secretary in the nurse's district office. The relationship of the division of public health nursing to the N. W. A. will be discussed later.

Duties of Field Staff

The average population assigned to each district superintendent of nurses is 66,250, and the average staff of nurses is about ten. Constant emphasis is placed upon the educational aspect of work in homes, schools, and clinics and the division of records and the special supervisors help the superintendent to analyze the results of her work. The department has endeavored to secure for her every possible avenue of approach to the homes with the exception of bedside nursing. In addition to miscellaneous opportunities of reaching her people, the following may be listed:

Reports of infant births and deaths received daily.

Health service in all public and separate schools.

Child welfare clinics.

Prenatal clinics.

Health services in day nurseries and children's institutions.

Health supervision of maternity homes and boarding homes for babies.

Reports of absentee civic employees.

Reports of communicable disease.

Calls from social agencies.

Calls from private physicians.

Names of all non-paying patients admitted to hospital wards.

Special cases referred from wards and out-patient departments by the nurses of the hospital extension service.

The district superintendent assigns a definite section of her district to each nurse. With a few exceptions, this small district includes one or two schools, and a child welfare clinic if the district needs one. A few districts include prenatal clinics, day nurseries, and maternity homes, and many include boarding homes for babies. School children or clinic mothers living outside the district are referred to the nurse responsible for the neighboring district if home visiting is required. Conference between the nurses in the district office makes this team play possible.

Each nurse takes advantage of all the avenues of approach listed above to become acquainted with the families of her district. In the school, the clinic, and the home, she teaches hygiene and brings to those who are already in need of treatment, the best available medical and social resources. The private physicians and the social agencies already interested are never ignored or discredited. The "city

	Runnymede	Parkdale	Hillcrest	Yorkville	University	Moss Park	Broadview	Scarboro
Superintendent	1	1	1	1	1	1	1	1
Clerk	1	1	1	1	1	1	1	1
Nurses	10	11	12	11	11	13	8	7
Half-time Nurses for Forest Schools, 6 months	1	2	2	2	2	2	2	1
Student Nurses	4	3	3	4	4	5	4	2
Dental Assistants	4	3	3	4	4	5	4	2
Volunteer Clinic Assistants	10	10	10	10	10	10	10	10
Cook and Cleaner	1	1	1	1	1	1	1	1

(C) The total personnel and assignments of the Division of Public Health Nursing are as follows: public health nurses, 112; clerks, 11; dental assistants, 29; volunteer clinic assistants, 85; student nurses are variable in number.

Appointments.—All appointments are made by the medical officer of health and confirmed by the city council. Appointments are based upon the recommendations of the director of the division.

Qualifications of Staff

(A) *Nurses.*—The public health nurses are graduates of recognized training schools for nurses and for the past three years an additional preparation of one year in a University Department of Public Health Nursing or Social Service has been required.

(B) *Undergraduate students.*—Arrangements have been made with the training schools of the city to send six groups of seventeen senior student nurses for two months of unbroken field work. The estimated total of one hundred and two will be exceeded this year.

(C) *Graduate students.*—The department of public health nursing of the University of Toronto depends upon the municipal department for a large part of the practical experience required by their students. Twenty-four students have been enrolled by the university this year.

(D) *Dental assistants.*—Special training has not yet been required for the assistants in school dental clinics, but the public health nurse assigned to the school is responsible through the district superintendent, to the supervisor of school nursing for the service given.

(E) *Volunteer Clinic assistants.*—ment of Public Health work in close cooperation with the nursing services, two divisions assuming special work upon which the nursing services depend.

The division of records organizes and directs all record keeping for the department. An analysis of the nurses' time and special studies of results, which help to guide the supervisors in their policies, are among its many activities for the division of public health nursing.

The division of accounting secures the supplies requisitioned by the district superintendents and special supervisors and gives other kindred services.

Other divisions with which close cooperation is maintained are: Division of Laboratories; Division of Communicable Diseases; Division of Isolation Hospitals; Division of Housing and Industrial Hygiene; Division of Sanitation; and Division of Food Inspection.

In 1921, a welfare branch of the department of public health was established with a director, five trained social workers, and three clerks.

The primary function of the welfare branch is to supervise the city's grants in aid to private charitable institutions, most of which are on a per capita service basis. The phase of this work that touches that of the nurses most directly is the family case work to prevent people becoming or remaining public charges, either in or out of institutions, and to make such public assistance as effective as possible.

Social cases involving field work that appear to be the responsibility of public rather than private philanthropy are referred to the Welfare Branch directly or through the

nurse" remains in touch with situations where health is threatened, regardless of other agencies interested, but she does not risk future cooperation with a physician or social agency by an aggressive policy designed to secure results in an immediate case.

Each field nurse reports at 8:45 to a school where a varied health service is given, the aims of which are three—the control of communicable diseases, correction of defects, and health education.

The medical officer is present at a pre-arranged time for conference with the parents and for complete physical examinations.

Constant watchfulness is required to prevent a full development of the health services in the schools at the expense of other equally valuable but less easily developed opportunities. A definite time-table can be arranged for the medical officer, since his routine duties in the schools are limited to complete physical examinations, appointments for which have been made by the nurse. The nurse's time-table, however, must be elastic. The number of re-admissions of absentees varies with the size of the school, the day of the week, the character of the population, and the cooperation of the teachers. Classroom inspections and health talks vary also in the different schools. The time spent in conference with the teaching staff is a matter which must be left to the judgment of the individual nurse. The analysis of time and of results prepared by the division of records is used by the district superintendents to emphasize the need for purposeful arrangement of time.

The miscellaneous nature of the nurses' duties and the team play involved with other individuals and organizations could not have been developed or controlled without the opportunity for direction offered by the noon hour in the district offices. The nurses report to the district superintendent upon completion of the morning's work. The plan of organization makes it compulsory for the nurses to lunch in the district offices, but the lunch hour, which is conducted on a cooperative basis, has become a happy feature of the organization and is largely responsible for a district *esprit de corps*.

At a definite hour new assignments and written confirmation of telephone messages are received by motor delivery from the central office. The medical officer receives assignments on the same delivery. Before or after lunch each nurse fills in her time sheet for the past twenty-four hours,

makes entries on case histories, prepares special reports for cooperating agencies, telephones physicians and others interested in her families, and joins in conferences arranged by the medical officer or special supervisors.

The afternoon may be devoted to home visiting, to a weekly child welfare clinic, or to assisting the medical officer with complete physical examinations in the schools. With frequent variations due to the nature of her work, the nurse leaves for home at 4:30 p. m.

Cooperating Agencies

It is impossible to understand the part played by the public health nurse in the "welfare game" of the city without understanding the part played by two other organizations, the Victorian Order of Nurses, and a federation of organizations known as the Neighborhood Workers' Association.

The Victorian Order of Nurses in Toronto employs forty nurses to do bedside nursing. In their professional organizations the nurses of the Order are known as public health nurses, but by common usage in the city, that title is limited to the staff of the department of public health. The nurses of the order are all graduates of recognized training schools and the standard of an additional year of post-graduate training has been set recently. The opportunity to teach health in the homes of the patients is receiving increasing emphasis. The fee charged varies with the income, except in the case of the Metropolitan Life Insurance policy holders, the deficit being met by the Federation for Community Service. Owing to the existence of the Victorian Order, the municipality has not attempted to assume responsibility for bedside nursing, but in conference with the nurses of the Order the public health nurses retain many cases requiring temporary service, or cases complicated by actual communicable disease. In various ways the two organizations are cooperating to deal with their common task.

The Neighborhood Workers' Association constitutes a unit of the Federation for Community Service and coordinates the activities of 187 agencies giving some form of social service in the homes of the city. Seventeen secretaries, equipped to do social case work, have been appointed to develop effective team play among these organizations. The various agencies included in the membership of the Neighborhood Workers' Association cover the entire field of pres-

ent day social effort and are becoming steadily more efficient. When no agency can be found to deal with a case the secretary herself assumes the responsibility. In order to simplify cooperation, the Neighborhood Workers' Association has adopted the district boundaries of the Department of Public Health and has encouraged other city-wide agencies in the federation to do so also. Ten secretaries of the Neighborhood Workers' Association share the offices of the district superintendents of public health nurses—as guests of the Police Department in six offices, and as tenants of social agencies in two. They join the nurses at the luncheon hour and other welfare workers of the district, including physicians, visiting nurses, social case workers, teachers, and clergymen, are occasional guests of the group.

As a result of this close cooperation between the two organizations, it is becoming possible for the public health nurses to concentrate upon those aspects of health work which require their special training. Before this personal contact was established between the field staffs of the two organizations, cooperation was so difficult that it was not always attempted.

Hospital Extension Service

One source of information regarding the health problems of a district which is invaluable to the District Superintendent of Nurses is the Hospital Extension Service. The nurses attached to this service constitute a distinct unit within the division of public health nursing. Their organization and duties cannot be described briefly.

Toronto has one municipal hospital—the Isolation Hospital. The remainder are conducted under a provincial Hospitals Act which provides for a per capita grant from the municipality responsible for the patient. Toronto's per capita allowance to the hospitals is \$1.50 per day. This city pays also for out-patient department service at the rate of \$0.32 per visit. The amount paid to the hospitals in 1921 was \$692,203 for in-patient service, and \$55,776 for out-patient service.

The city relief officer decides from his office upon the eligibility of each patient for free treatment in hospital wards. The admitting officer in each hospital makes the decision for out-patient service.

From the city relief office in the city hall, the patient or his friends are sent to the city hall office of the public health nurses, where the "city or-

der" is granted, ambulance arranged for if necessary, and the need for home visiting detected in the more obvious cases. The district office is notified by telephone if immediate advice or help is needed in the home.

Twelve public health nurses are attached to the various hospitals to make a closer contact with the city's patients and to secure cooperation from outside medical and social agencies in dealing with individual or family problems. These twelve nurses are in close touch with both in-patient and out-patient departments of all public hospitals, with the exception of the largest, which had already organized its own social service department at the time the department of public health began to develop its hospital extension service. Responsibility, however, for follow-up work from the chest clinic of this hospital and for tuberculosis patients on the wards is assumed by the public health nurses and close cooperation exists with the social workers in other clinics. The public hospitals to which Toronto sends patients are:

General hospitals: in-patient, 1; in-patient and out-patient departments, 4.

Women's hospitals: In-patient and out-patient departments, 2.

Children's hospital: in-patient and out-patient departments, 1.

Tuberculosis hospitals: Adult, 5; children, 1.

Preventorium, 1; isolation hospital, 1; convalescent hospital, 1; tuberculosis dispensary, (no city grant), 1; hospital for incurables, 1; and hospital for epileptics, 1.

The clinics provided by the hospitals are: chest, 6; circumcision, 1; dentistry, 4; dermatology, 5; ear, nose, and throat, 6; eye, 5; gastrointestinal diseases, 1; genito-urinary diseases, 2; gonorrhea, 6; gynecology, 5; heart, 3; homeopathy, 1; medicine, (general), 6; neurology, 3; nephritis, 1; nutrition, 1; obstetrics, 5; orthopedic conditions, 2; psychiatry, 1; surgery, (general), 6; and syphilis, 6.

Obviously, it is impossible for twelve nurses to attempt the social treatment and health teaching required by the homes of the individuals admitted to these hospitals and clinics, and we do not expect them to ignore the many and select the few for the purpose of demonstration or for any other purpose. Their task is to provide a link between the hospitals and the outside agencies, who are prepared to give the treatment needed. The task is not a simple one but we believe it can be handled with satisfactory results in Toronto on account

of the district organization and its close relationship to the Neighborhood Workers' Association. The public health nurses assigned to this particular team play should be selected for executive qualities not possessed by the average individual. They should be prepared to do intensive social case work when, as occasionally happens, it is unwise to enlist the services of another organization. They must be able, also to interpret the social aspects of the case and the plans of outside agencies to the medical and nursing staffs of the hospitals. The public health nurse assigned to this branch of the service must have been a member of the general staff and have become well acquainted with the organizations included in the Neighborhood Workers' Association if she is to refer cases for nursing or social treatment in such a way that effective treatment will result.

The Hospital Extension Service in grappling with a problem which is common to every large city on the continent, has adopted a principle or method of working probably nowhere else attempted. There are difficulties still to be overcome by both the Extension Service and by the social agencies represented in the Neighborhood Workers' Association but already a very significant contribution has been made to the problem of meeting the social needs of sick persons and their families from an entirely new angle.

Venereal Disease Service

The general plan of hospital extension service has been modified to meet special conditions, in some instances for short periods and in one instance as a permanent policy.

The medical social service work in connection with syphilis and gonorrhea clinics is attempted by the nurses of the hospital extension service. Selected cases are referred to our own district staff or to suitable social agencies, and the plans of the clinicians are reported to responsible social agencies who have referred cases for diagnosis and treatment.

The necessity for secrecy if we are to retain the confidence of the public as well as of the private physician who refers cases to clinics makes it impossible to enlist the help of outside agencies to the same extent as in other diseases.

It has been found that the director of the division and the district superintendents require the assistance of nurses who can concentrate upon certain aspects of the work of the division. At present five supervisors

are required. These nurses keep in touch with the changing policies and personnel of cooperating agencies, the majority of whom concentrate their attention upon age groups or selected medical and social problems. The supervisors bring the experience of these specialists to the division and help the director and superintendents to formulate the policies governing team play, in addition to helping with the supervision of the routine work of the public health nurses in the field.

The policy of each special supervisor is determined by factors peculiar to the problem with which she deals, by local history and personalities as well as by her own personality, with the result that no two supervisors adopt the same methods. Their duties change as the city-wide situation develops.

The following summaries indicate the relationship of the supervisors to other organizations and to our own Department.

Child Hygiene Section

The Supervisor of prenatal, infant and pre-school Child Hygiene, represents division on Child Welfare Council of Toronto and Canadian National Council of Child Welfare; gives eight lectures a year in connection with department of public health nursing, University of Toronto, and directs field work given to selected students; reports to director of the division of child hygiene, who is also chief of medical staff at the Hospital for Sick Children, and professor of pediatrics at the University of Toronto; is responsible for cooperation with Victorian Order of Nurses in regard to prenatal and infant hygiene.

With the help of an assistant who supervises licensed maternity homes and boarding homes for babies, the supervision of prenatal, infant and pre-school child hygiene endeavors to limit the department's responsibility in child placing to the health supervision of boarding homes. This has involved a close relationship to a very complex situation amongst child placing agencies.

She holds weekly conferences with the director of child welfare clinic volunteers and plans with her the distribution of volunteers and the type of service necessary to meet the growing needs of clinic work, and advises as to location and equipment of child welfare and prenatal clinics and, together with the district superintendents, supervises these clinics.

She organizes special activities, *e. g.* a summer clinic at Toronto Island.

With the help of the division of rec-

ords, the supervisor analyzes findings in child hygiene work and in a variety of ways, helps the district superintendents to direct their staffs along the lines most productive of results; arranges lectures or conferences for the district staffs when changing theories or methods of treatment make it necessary; and prepares department literature on prenatal and infant hygiene, with the help of specialists, under the direction of the deputy medical officer of health.

School Nursing Section

The supervisor of school nursing represents the division on home and school council of Toronto, Ontario Educational Association, and American School Hygiene Association; gives seven lectures on school nursing to students enrolled with the department of public health nursing, University of Toronto, and directs field work given to selected students; organizes special course of twenty-four lectures for department of social service, University of Toronto. The students enrolled in this course are the senior pupil nurses from nine hospital training schools.

She confers with the deputy officer of health and director of school dental services regarding policies and routine of nurses' duties in connection with the schools and home visits to school children; confers with the chief inspectors of public and separate schools with reference to cooperation with teaching staffs, selection of pupils for special classes, and similar matters; represents division on committees appointed to deal with special problems such as milk distribution and the handling of material relief in the schools; organizes the staff, through the district superintendents, to deal with special duties such as health leagues, milk distribution, weight and measurement survey, and selection of children for special classes; recommends, to the Director of the Division, the appointment of Dental Assistants and organizes their service in the schools, placing them under the immediate supervision of the nurses in the schools and the District Superintendents; selects posters and literature for the use of the staff; assists division of records in the preparation of an analysis of service sent monthly to school principals; analyzes results with the help of the division of records and helps the district superintendents to develop methods most productive of results, to eliminate non-essentials and to avoid spending too large a proportion of available time within the school walls; and assists

district superintendents in maintaining an efficient and uniform school nursing service by supervising that service in the schools.

The supervisor of venereal disease service is the representative of the nursing division on the Toronto Social Hygiene Council, and she assists in the enforcement of the venereal diseases prevention act. The duties attendant upon this part of the work include: Daily attendance at the Women's court for the purpose of interviewing persons who may be brought under the Act; visiting the jail and municipal farms for the purpose of interviewing persons detained there under authority of the Act; advising and conferring with physicians and public health nurses, police, Provincial Board of Health, social agencies, and private individuals, regarding persons to be brought under the Act.

The supervisor of this service handles special cases which are not known to the district, or where it may be unwise to give them to district, *e. g.* contacts of persons whose death has been registered as due to syphilis or its sequelae; attends women's court to assist magistrate in dealing with cases requiring cooperation of outside agencies; assists supervisor of hospital extension service in organization of syphilis and gonorrhea clinics; and organizes monthly conferences with five nurses of Hospital Extension Service, conferences which they in turn conduct in the district offices.

The supervisor of mental hygiene service and assistant—arrange for surveys to be made in the schools by the psychiatrist; assist him and his secretary in conducting these and in the re-examination of many pupils seen previous year; accompany the psychiatrist on his visits to the auxiliary classes and by frequent visits between times keep in touch with their teachers regarding progress of the pupils and problems arising from their mental condition; maintain co-operation for the department with the psychiatric clinic of the Toronto General Hospital and the psychiatrist of the Juvenile Court.

They arrange for admission of emergency cases to the Hospital for Insane and for application for admissions to the other various Ontario hospitals and special institutions for the handicapped, and initiate the follow-up work among the children who have been in the auxiliary classes and are now out of school either at home or at work.

It has been found possible to place the general supervision of the tuber-

culosis work of the division in the hands of the supervisor of hospital extension service. This supervisor is already closely identified with the sanitariums and with the chest clinics, all of which—with one exception—are part of the hospital out-patient departments. The district superintendents require comparatively little help in directing the tuberculosis work of their staffs in either schools or homes. The supervisor of hospital extension service has certain special duties, however, which deal with the control of tuberculosis and which cannot be left to the district superintendents.

She represents the division with, Canadian Association for Prevention of Tuberculosis and with two social agencies identified with tuberculosis clinics; enforces physicians' notification of tuberculosis; and with the help of the division of records, forwards prompt reports to the districts of sputum reports, admissions to sanitarium, and deaths.

Regular Conferences Held

The district superintendents meet at least every two weeks in a district office to formulate recommendations as to policies and to confer upon details of administration. The director of the division and her assistant are usually present at these conferences. The supervisors meet formally or informally in the Central Office when necessary. A joint conference of superintendents and supervisors is held every two weeks with the director of the division or her assistant presiding. A representative from the division of records and statistics is always present. The deputy officer of health is notified of all meetings and attends occasionally. Topics for discussion are presented from the districts and dealt with by the supervisors or referred to other divisions of the department and other organizations for advice. The supervisors submit proposed action for discussion, and criticize district methods and results.

Occasional meetings of the entire staff of the division are held in the city hall, when questions of department policy can best be presented in that way, or when representatives of other city organizations or distinguished visitors from other cities have subjects to present which justify this expenditure of staff time. The director of the division presides at all staff meetings.

On these occasions, the chairman of the council which is elected by the staff may call a meeting to deal with the professional or social interests of the staff.

Dr. Frankel, Chairman of N. H. C.

THE National Health Council held its annual meeting on January 6 in the New York offices of the Council. The principal item of business was the election of officers for the year 1923.

Dr. Lee K. Frankel, long a prominent figure in health work in America, was elected chairman to succeed Dr. Livingston Farrand. Dr. Frankwood Williams, the medical director of the National Committee for Mental Hygiene, was elected vice-chairman to succeed Dr. Frankel. Dr. S. J. Crumbine, secretary of the Kansas State Board of Health, was elected to succeed himself as Secretary of the Coun-

significant statement concerning the Council:

Many factors have contributed to the great advance made in public health during the last half century. Of these, increase in scientific knowledge must be given the first place, but the public interest which has made that knowledge effective has also played an indispensable role. This has resulted in the formation of many voluntary organizations all seeking the betterment of health and vitality but operating, as a rule, along specialized and independent lines. The National Health Council has been brought about to coordinate and unify these efforts. Its organization and development is one of the most important steps taken in the field of public health in recent years.



Dr. Lee K. Frankel, long a prominent health worker, now heads National Health Council.

cil, and Dr. William F. Snow, general director of the American Social Hygiene Association, was elected to succeed himself as treasurer.

All the members of the council, as follows, were represented: American Public Health Association, American Red Cross, American Social Hygiene Association, American Society for the Control of Cancer, Conference of State and Provincial Health Authorities of North America, Council on Health and Public Instruction of the American Medical Association, National Child Health Council, National Committee for Mental Hygiene, National Organization for Public Health Nursing, National Tuberculosis Association, and the United States Public Health Service.

Dr. Farrand, the retiring chairman of the Council, issued the following

Private Physicians Should Give Periodic Tests

We are glad to give space to the statement below by Dr. Hermann Biggs since it expresses an admirably sane and constructive attitude relative to an important matter of personal hygiene.

At the annual conference of Health Officers and Public Health Nurses of New York State held at Saratoga Springs last June, I referred to the importance of periodic physical examinations, which I have long advocated as a means for the preservation of health and the prevention of diseases through early recognition and correction of defects and abnormal conditions. Comments which have since appeared in a number of newspapers indicate that serious misconception exists in some minds as to the purport of my remarks. The impression seems to have arisen that I favor an official scheme of compulsory physical examinations, to be conducted by health officers or other physicians employed by the public authorities, with the implication that every man, woman and child should be required to submit to such a periodical inquest into his or her physical condition.

It does not seem really necessary to explain that I agree heartily with the critics of any such proposal, and that I never have and do not advocate any kind of compulsory state medical inspection of the individual citizen, except as such inspection is now carried on practically everywhere in our public schools and in charitable and penal institutions. A prying inquest by public authority into the physical condition of the adult citizen would be utterly repugnant to American ideas of individual rights, and of the proper sphere of government. The worst enemy of periodic medical examinations could choose no better means of making his opposition effective than to advocate such a fantastic plan as seems to have been read into my address at Saratoga.

So much having been made clear, I ask space to repeat my conviction that

nothing is more important for the citizen who cares to keep well than that he should go of his own free will to his own physician and demand thorough examination at reasonable intervals, with the application of all the resources of modern scientific medical knowledge. This means not merely a hasty examination of the heart and lungs with the stethoscope, but a complete medical survey, including various special tests of the blood and excretions, examination of the eyesight and hearing, as well as of the nose and throat, and often accompanied by an x-ray of the chest or other parts of the body. Adequate examination also means taking into account mental as well as physical factors, and basing conclusions on a full knowledge of living and working conditions, income habits, recreations, and the pertinent facts of family and personal history.

It must be obvious that such examination and advice based on it can be properly made and given only under the conditions of freedom and intimacy which are implied in the relation of the individual to his family physician. For the state to attempt thus to examine its citizens would be not only intolerable but futile, since the utmost degree of confidence and cooperation on the part of the patient is required if anything is to be accomplished. The best trained modern physicians are equipped to examine and advise their clients how to keep well, and rightly expect to be consulted for this purpose and not merely to attempt the cure of an established disease. Perhaps it is not true that the Chinese pay their doctors only to keep them well, but if this popular legend is not based on fact it was at least well invented, for it expresses the essence of the coming system and practice of civilized society. As was said recently in one of our radio health talks "The human body is the only machine for which there are no spare parts." We must learn rightly to use and carefully to safeguard those which we have. And we can best do this by picking out a competent medical adviser, consulting him frequently, believing what he says, and following his counsel.

A rural health survey on which proposed legislation will be based will be made by a committee consisting of two representatives each from the New York State Farm Bureau Federation, State Grange, Dairymen's League, New York State Home Bureau Federation, and one each from other states organizations doing health work. Existing health agencies will be investigated by a special committee consisting of S. L. Strivings, N. Y. State Farm Bureau Federation, Prof. Dwight Sanderson, State College of Agriculture, Ithaca; Dr. M. Nicoll, Jr., deputy state health commissioner; George J. Nelbach, State Charities Aid Association, and Mrs. Henry Burden, State Home Bureau Federation. Mr. Sanderson is chairman.

Health Agencies in the District of Columbia*

A Preliminary Study Looking Toward Complete Coordination

By WALTER CLARKE, ADMINISTRATIVE SECRETARY, NATIONAL HEALTH COUNCIL, NEW YORK CITY.

THE situation in the District of Columbia is different from that existing in any state, yet in these studies it seems fitting to consider the District of Columbia on the same basis as a state. One has the precedent of the Conference of State and Provincial Health Authorities for this classification, as that body considers the District of Columbia, for the purposes of the conference, as equal to a state. On the other hand, it must be pointed out that the District of Columbia is practically the city of Washington with a narrow fringe of suburban and rural country about it. The problems of the District are practically those of a city and the developments which have taken place in the direction of coordination are similar to those which have taken place in a number of cities.

Exceptional conditions exist in the District of Columbia. Among these conditions the following may be mentioned:

(1) All District affairs are eventually in the hands of Congress and legislation and appropriations for the District are passed as acts of Congress. This condition operates to the disadvantage, I believe, of the health work in the District of Columbia on account of the great difficulty of moving Congress upon the comparatively unimportant affairs of the District. Legislation is very difficult to secure and I am given to understand that appropriations for the District health work have been inadequate.

(2) A number of national voluntary organizations engaged wholly or partly in health activities make their headquarters in Washington, among which may be mentioned the American Red Cross, the National Health Council, the American Child Hygiene Association, the National Research Council, and the National Child Health Council. Furthermore, Washington is the headquarters of the United States Public Health Service, of the Bureau of Education, and of the Children's Bureau. The presence of these national official and voluntary agencies in Washington should be a source of strength in the development of health activities in the District.**

(3) Washington has a disproportionate temporary population of distinguished American and foreign men and women. Representatives of foreign countries, members of Congress, and persons engaged in government work outside of civil service, make up a considerable part of the population of Washington. This portion of the population exerts a considerable influence on health matters.

Existing Health Agencies

The American Red Cross, D. C. Chapter, engages in work similar to that in other metropolitan chapters except that perhaps the advantage of close association with the national headquarters is evident. Classes in first aid, home care of the sick, food selection and nutrition, are conducted in addition to the other important activities which are not properly included under health work.

The Association for the Prevention of Tuberculosis carries on its work through education and through the operation of a preventorium and fresh air classes. The annual budget is twenty-five thousand dollars, which is secured from the seal sale and from voluntary contributions.

The Child Welfare Society conducts nutrition classes for undernourished children, dental clinics for the care and treatment of their teeth, and mental hygiene classes for the correction of abnormal tendencies. The annual budget is approximately thirty thousand dollars, secured from voluntary contributions and in part from congressional appropriations. Ten health centers for white and colored mothers and children are in operation.

The Instructive Visiting Nurses Society provides nursing care for the sick, and instruction in the principles of hygiene and sanitation, prenatal and post-natal care. The work is carried on by graduate registered nurses, and the organization is supported by voluntary contributions, the budget amounting to approximately forty thousand dollars per year.

The Social Hygiene Society of the District of Columbia cooperates with voluntary and government organiza-

tions in dealing with legislative, educational and medical measures for the prevention and cure of venereal diseases. The Society also is interested in the non-medical phases of social hygiene including positive sex education.

The Society for the Prevention of Sickness is an organization of scientific men for the dissemination of information concerning milk and the feeding of infants. The principle work of the organization is to send to every mother, immediately following the registration of birth of her child, a pamphlet of instruction concerning infant feeding.

The District Health Department functions as a regular municipal department, including the usual bureaus and service. One tuberculosis clinic and one venereal disease clinic are in operation.

The District of Columbia Cancer Committee engages yearly in a vigorous "Cancer Week" campaign.

The Endorsement Committee on Welfare Organization is similar to that which exists in certain other cities to protect the public against fraudulent and inefficient social agencies. The committee is appointed by the commissioner of the District of Columbia from the membership of the Board of Trade, the Chamber of Commerce, Merchants and Manufacturers' Association, the Rotary Club, City Club, Federation of Citizen's Associations, Kiwanis Club, Women's City Club, Twentieth Century Club, and the "general public." In other words, the committee represents the people who contribute funds for the support of social and charitable organizations. The committee has set up standard requirements for the approval of social and philanthropic societies. These are as follows: (1) Filling a need sufficiently great to warrant equipment and support of a separate institution. (2) Local concern governed by a board of responsible and reputable people in actual control of its local affairs. (3) Accurate financial accounts open to inspection by this committee. (4) Expenditures not out of proportion to result accomplished. All approved organizations are furnished with endorsement cards signed by the officers of this committee.

The Washington Council of Social

*One of a series of similar studies regarding state health organization.

**A description of the nine Government bureaus engaged in public health work is contained in reports issued by the Washington Office of the National Health Council.

Agencies was organized in 1921 for the promotion of cooperation and a mutual understanding among forty private agencies and nineteen public agencies engaged in local welfare work. Not all the agencies in the District of Columbia engaged in social work are members of the Council of Social Agencies, some having remained out of the Council on account of financial restrictions. The members of the council contribute a small proportion of their budgets to the support of the council which maintains an office and a secretary. Voluntary contributions also are received by the Council, at least in its initial stages. The objects of the council are described as follows:

(1) To encourage and develop cooperation of social and civic agencies, and to correlate the social work of the District of Columbia.

(2) To increase the efficiency of social agencies and social work generally in the District of Columbia.

(3) To study social problems.

(4) To secure publicity of, and to endeavor to educate the public to a better understanding of social work in the District of Columbia.

(5) To act as an advisory council to social agencies in the District of Columbia.

(6) To provide for neglected social needs in the District of Columbia.

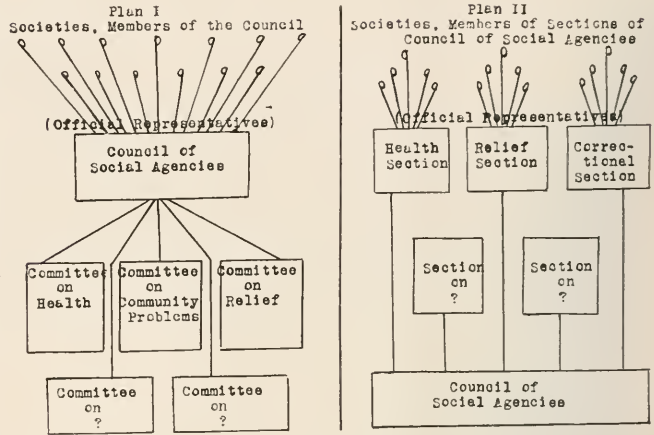
(7) To do such things or engage in such other activities as may be determined necessary to the general interests of social welfare, charity and philanthropy in the District of Columbia.

The forty private and nineteen public agencies which make up the Council may be classified under homes, orphanages, and boarding institutions, charitable relief organizations, child welfare agencies and day nurseries; correctional institutions, dispensaries and hospitals; religious education institutions, prisoners, aid, probationary and protective agencies; settlements and social centers; organizations of war veterans, and health agencies. It will be seen from this general grouping that the Council of Social Agencies includes practically every kind of social, health and relief organization.

The council functions through standing committees known as the Community Committee, the Family Welfare Committee, the Health Committee and the Children's Committee, but additional committees are appointed from time to time to study special problems and to make recommendation as to action which should be taken.

Several of the members of the health committee of the Council of Social Agencies are organizations which are not primarily or exclusively interested in the promotion of

ALTERNATIVE ARRANGEMENTS OF GROUPS IN COUNCIL OF SOCIAL AGENCIES



Two points of view have been brought out regarding health organization: (1) That no hard and fast line can be drawn between agencies engaged in health work and others devoted to social work; and (2) that health agencies dealing with technical scientific questions can accomplish most by focusing on specific health problems, and that wider coordinations lead only to confusion. The distinction between one point of view and the other is well illustrated in the two diagrams shown.

health. Thus the Y. W. C. A., Y. M. C. A., and Boy Scouts, are included in the membership of the Health Committee. The functions of the health committee are to consider health problems, especially those which involve cooperation or coordination, and to make recommendations to the council.

Perhaps the disadvantage under which the health agencies, members of the Council of Social Agencies, operate in their connection with the council is that no clear distinction has been drawn between specific health agencies and the other agencies which have an interest in health work. The affiliation of members of the council is first of all with the council itself and only secondly with a special division of the council, such as the health committee. The question may be raised as to whether it would be better in the interests of coordination of health activities and the strengthening of agencies engaged in health work to have the line of affiliation from the individual health agency direct to the health committee and then from the health committee to the council.

But those who are most strongly in sympathy with councils of social agencies point out that no hard and fast line can be drawn between certain agencies engaged in health work and others engaged in social work. These persons have felt that it is not advisable to separate health organizations into compartments by themselves, out of contact with other agen-

cies. On the other hand, it is urged with equal conviction that health agencies dealing with technical scientific questions can accomplish most by focusing upon specific health problems and that an attempt to coordinate very large and varied groups of social, relief, and health agencies, results only in vagueness and confusion.

The distinction between one point of view and the other is perhaps best illustrated by the diagram shown.

The advantage of the Council of Social Agencies in a situation such as exists in the District of Columbia lies in the fact that it is possible to provide an executive to promote friendly relations and cooperation among a group of agencies. If the executive is sufficiently trained in health work to understand the problems of coordinating health agencies it would seem advantageous for health societies to join in a central council for social agencies, provided such health societies are not able financially to support a trained executive officer among themselves for the promotion of their special interests. Where state health agencies are sufficiently strong to organize a separate health council and employ a competent executive, that executive can keep in touch with other social and philanthropic agencies and can insure cooperation wherever cooperation is feasible. But in any case the health council can usually with advantage affiliate itself with a general council of social agencies where such exists.

Rural Welfare Work of Mexican Government

Department of Agriculture Sends Hygiene Exhibit to Sons of Soil

By HELEN BOWYER, MEXICO CITY, MEXICO.

AMONG the most modern-minded and constructive of Mexico's high government officials stands Señor Ramon P. de Negri, in charge of the federal department of agriculture. His program for the upbuilding of farming in his country includes not only scientific attention to land and seed and stock but attention, as well, to the men, women and children upon whose health and intelligence the basic industry of the republic must depend.

As a first step in working out his plans for their well being, he has organized a campaign in behalf of the rural family which is already well started on its itinerary among the villages of the central states. It centers round an exhibit of some hundred posters on hygiene, food values, housing, child care, cleanliness, and the value of education. Some of them were adapted from posters of the American Red Cross, National Tuberculosis Society, Children's Bureau, Woman's Bureau, National Society for the Prevention of Blindness, Child Health Organization, and other important agencies in the United States. But a large number are originals evolved from the conditions and needs of Mexico itself. All are hand made in colors by leading artists of the capital, and form as vivid and expressive a collection of pictures of their kind as can be found upon the continent.

Two cars, granted for the purpose by special order of the President of the Republic are carrying the exhibit to the *campesinos*. One car is fitted up to serve as the exposition hall in those tiny rural centers where no suitable public building exists; the other serves as living quarters for the four young women who form the commission in charge of the campaign. This latter is provided with a kitchen and a cook so that the commission may carry its message to those frontiers of civilization where enlightenment is most needed.

To the American social worker, few things could be more basically dramatic than the visit of the campaign to one of the more isolated and primitive of the communities along its route. Ajusco, for instance, a little

mountain station some two miles above the level of Broadway, is composed of the station agent's house and office in a couple of box-cars and straw huts for the section hands. At first glance one would wonder what the commission could find to do in the five days' stay which time they informed railroad authorities they wished to leave their cars on the siding.

But a little way off, on the slope of the foothills of Ajusco, the old cloud-blanketed volcano which gives its name to the region, the dazzling sunlight disclosed the white walls of a large and scattered village. This under the guidance of the station agent's interested and energetic wife, two members of the commission canvassed, calling at every house and personally inviting the mothers to the exhibit and conferences and the children to the playground, which in the meantime other members of the party were installing in the beautiful mountain meadow that sloped upward from the railroad tracks to the tree line on the hills.

Erect Own Playground

That playground is a revelation to young Mexico. Outside of the one maintained in the capital by the International Playground Association and here and there some apparatus in the patio of a mission church such a thing scarcely exists in Mexico. It

is hard to say if the sliding board or the swings afford more delight but the honor of being first copied must go to the flying machine. In the second village the campaign visited the commission was overjoyed to run across a very creditable merry-ground in full swing beneath the weight of five or six hilarious young Indians who, taking full note of the construction of the one the commission had brought, had begged a tall iron tube and a wheel from the station agent and set up the beginnings of a permanent playground for community use. Little by little they intended to complete their equipment till they had apparatus similar to that in the meadow by the tracks, they said.

Inquiry developed the fact that just back of the low hills around the station lay other hamlets and these the commission also visited—on foot, on horseback, in the section car, by any means of transportation that offered. Nothing could exceed the simple good faith with which they were received. "It does not cost a single cent. It is a fiesta which the government is sending you free out of interest in your welfare," were the last words of the commission members as they took leave of each group. And though never perhaps in their experience had any former government sent such a message to them, they now listened trustingly.



Housed in box cars the exhibit travels to out of the way mountain villages.



In the ancient palace of Cortez whence came only cruelty and oppression to the children of the land is now located the rural family welfare commission, established by the Republic of Mexico for its people.

The villagers of Topelejo who could not spare from their fields the whole day that the visit and the journey would consume sent a message by their mayor that if the commission would remain until Sunday, the village would turn out in a body.

Among the attractions of the exposition the modest phonograph ranks high. At this season of the year night falls early in the *Valle de Mejico* and on its high mountain rim it falls very cold. But at five o'clock the darkness which has swallowed up the exhibit car is broken by pale patches of sombreros and white campesino trousers under enveloping blankets as the men of the community gather round the door. Inside, in the dimly lighted car—for here electricity is unknown—black shawled women with their children are squatting packed upon the floor, their eyes absorbedly turned upon the magic box from which the strains of *La Golondrina, Mexico*

Bello, and *El Sitio de Queretaro* come singing as by miracle to them. Within a day or two the more adventurous of the men have mastered the mechanics of the thing and can take charge of the Sunday concerts while the commission is exhibiting the bedbug, the head louse, the body louse, and other noxious enemies of the race to astounded little groups gathered round the microscope.

Locale Sign of New Day

At the moment of writing, the campaign is in Cuernavaca, the indescribably beautiful little capital of the State of Morelos. Here again a sense of the dramatic overtakes the social worker. For the locale to which, through the warm cooperation of the Governor, the commission has moved its equipment is the legislative chamber of the ancient palace of Cortes. That from this towered and ornate pile from which proceeded little

but slavery and cruelty to the children of the soil before the revolution should now come the first steps of a campaign to make them free and strong and happy is a sign of the new day which with time and peace her leaders hope to bring to the people of Mexico.

Dengue Fever Prevalent in the South

The wide prevalence of dengue fever in the South is emphasized by replies from a number of municipal health officers to whom the Metropolitan Life Insurance Company sent inquiries early in November asking for statements of the number of cases and deaths in Southern cities. These replies indicate that the 1922 outbreak of this disease is the most serious that has occurred in the United States since the Galveston epidemic of 1897 when twenty thousand people were attacked within two months.

The *Statistical Bulletin* of November, 1922 states that the worst report from the standpoint of fatal cases is that from Houston, Texas, where, within a period of a little over four months beginning in July, 575 cases were reported with nineteen deaths. The health officer of this city estimates that there were many thousands of additional cases, of a more or less mild form, which did not receive medical attention, and which, in consequence, were not reported to the health department. In Birmingham, Ala., there were 981 cases reported in October with two deaths. In Tampa, Fla., 1,060 cases with one death occurred in a five months period. In Macon, Ga., the health officer estimates that there have been between twenty and thirty thousand cases with four deaths. Reports received from other cities are as follows: Dothan, Ala., had 272 cases in the city and surrounding country; Montgomery, Ala., 137 cases; St. Petersburg, Fla., 2,000 to 2,500 cases; Albany, Ga., 68 cases, which the health officer estimates to be about 20 per cent of the actual number; Brunswick, Ga., 608 cases; Vicksburg, Miss., 205 cases; Beaumont, Tex., 4,175 cases; Galveston, Tex., 255 cases.

Several of the health officers state very frankly that the number of cases reported gives only an inadequate picture of the prevalence of the disease. In some cities it is not reportable, and even in those where it is reportable, hundreds or thousands of cases are not given medical treatment, and do not get into the health department records.



Young Indians of Tres Marias, not to be outdone by the commission playground, built for themselves a merry-go-round from a tall iron tube, a wagon wheel and ropes.

Development of Vital Statistics in Canada*

The Demand for Facts Has Now Been Met by Properly Collated Data

By E. S. MACPHAIL, SUPERINTENDENT, DOMINION BUREAU OF STATISTICS, OTTAWA, ONTARIO.

VITAL statistics in Canada being the product of systems of registration, a short review of these systems in the early days is essential. The collection of vital statistics in Canada, as in most countries, commenced with the recording of baptisms, marriages, and burials by the parish priests. These registrations, instituted solely for ecclesiastical purposes, were without reference to their statistical value. Indeed, at that time they had no statistical value.

In the province of Quebec the preservation of these registrations makes it possible to have a continuous record of births, marriages, and deaths from the founding of the colony on the banks of the St. Lawrence in 1610 to the present. More than fifty years before Captain John Graunt compiled mortality statistics for London, England, the priests of Quebec made reports to their superiors of the numbers of births, deaths, and marriages occurring within the year in their parishes. It is obvious that these were not "vital statistics" as the term is now understood. Even at the present time "Registration" and "Statistical Collection" are two different and distinct things in Quebec—the former is an ecclesiastical function, the latter a civil one.

In the early days there were no regulations as to the manner in which these registers should be kept. There is, however, no doubt that a complete record of every marriage, death, and viable birth was made. In 1678 a code of regulations was prepared which provided that these records should be made in duplicate, one copy to be delivered to the civil authorities in the month of December each year. This arrangement was continued after the cession of the country to Britain and was, by statute, extended in 1793 to the newly established Protestant congregations. This Act with but few slight changes constitutes the civil instrument under which the province of Quebec now obtains the data for its annual vital statistics report. The mortality returns thus obtained are fairly complete, with the excep-

The Draft Vital Statistics Act with its annexed schedules has been utilized in Canada to form the basis for legislation in the several provinces to secure uniformity of procedure and comparability of results.

Standard forms, perfected by the Dominion Bureau, are supplied free of charge to subdivision officials so that it remains for only a single province to conform to suggested standards to bring about statistical results in Canada comparable with those of other countries.

While Canada did lag somewhat behind some countries in the collection and publication of vital records, a complete system has been envisaged so that the causes of fluctuations may be reached through the analysis of the data that now are well in hand.

tion that the cause of death is not always covered by a medical certificate. Births and marriages are reported by totals only once a year. There are no individual returns made for either births or marriages.

In English speaking Canada the registrations of births, deaths, and marriages were from the commencement seriously defective. The pioneer settlers, often going out into the wilds, far from the ministrations of religion and centers of civil authority, were not much interested in making official reports of births, deaths, or marriages. In Ontario the registration of anything more than deeds had hardly begun before 1860. In that year an act was passed for the collecting and safe-keeping of the records of all marriages celebrated in the province. But as the law provided that the clergyman should pay one dollar for each registration made, its failure was a foregone conclusion. In 1868 legislation was enacted for the free registration of births and deaths. Since then Ontario has given a great deal of attention to its vital statistics legislation and has been from year to year extending its scope and perfect-

ing its procedure. In 1871 the province commenced the compilation and publication of statistics of births, deaths, and marriages and has been in favorable comparison in this regard with other countries having a progressive vital statistics program.

Until quite recently births and deaths were not officially recorded in Prince Edward Island or New Brunswick. It was much easier to find the natal history of a pure bred "silver fox" than of a child. It was not thought necessary to have any record as to when a death occurred and the cause of it; that there might be a vague reason for registering a birth, but "What sense was there in keeping an official record of when a person died or the cause of death," sums up the general attitude regarding the registration of births and deaths in some of the older provinces.

In Nova Scotia, as early as 1761, legislation was passed providing for the registration of births, deaths, and marriages. In so far as births and deaths are concerned the act remained a dead letter for several years. Marriage registrations contained merely the name of the bride and groom. It was not until 1864 that official returns of births and deaths were made compulsory.

The prairie provinces, being settled at comparatively recent dates, had from the outset established systems of vital statistics based largely on the systems in vogue in countries where the most modern ideas prevailed.

In British Columbia the collection of vital statistics had its inception in 1872 and the first report was issued in 1874. The act and schedules were modelled after those under which Ontario operated.

Having briefly sketched the beginnings of registration in the several provinces and the making of returns of births, deaths, and marriages for statistical purposes, we may for a moment or two review the part played by the Dominion in this field.

The legislative authority of the Parliament of Canada and of the several provinces is delimited by the British North America Act, 1867. Under this instrument "Property and

*Read before the Fifty-First Annual Meeting of the American Public Health Association, Vital Statistics Section, Cleveland, O., October 18, 1922.

Civil Rights" falls within the jurisdiction of the provinces. And because vital statistics—or rather the registrations from which the statistics of births, marriages, and deaths are compiled—are essential in the transfer of property and the establishment of civil rights in general, each of the nine provinces had, as outlined above, for some time, passed legislation more or less effective on the subject. Concurrently, however, the British North America Act assigned "Census and Statistics" to the Dominion Government. In the original Census and Statistics Act, the Office was assigned two definite functions: (1) to collect a record of all persons deceased within the census year; (2) to coordinate and collate the vital statistics collected annually by provincial or municipal agencies. Thus two kinds of statistical activity were imposed on the Office; (a) independent inquiry in census years as to deaths and (b) annual collection and publication of births and deaths in collaboration with provincial or municipal agencies.

The collection of mortality statistics was a feature of every census from 1871 to 1911. In no instance were the data collected worth the time and money expended on them. Nevertheless, in spite of the inherent unsoundness of securing at a decennial period a record of deaths the practice was continued until 1911, when the obviously inaccurate character of the results led to the discarding of the data obtained. The inquiry has been omitted from the population schedule of the Sixth Census.

No Permanent Machinery

Turning to the second kind of activity enjoined on the Census Office—the collecting and collating of vital statistics in cooperation with provincial and municipal authorities, it may be stated that, while the framers of the original Census Act provided for an undertaking which could only have been successfully carried out by a permanent bureau, yet not until 1907 did the newly created Bureau of Statistics known first as "census and statistics office" provide the necessary machinery and staff to give effect to the provisions of the act. For every decennial census previous to 1911 a new staff from director to messenger had to be assembled. It was, therefore, impossible for an office which had not a permanent existence to co-ordinate the vital statistics of Canada through cooperation with provincial agencies even did the several provinces provide the means for such an undertaking. It requires time, pa-

tience, and a trained staff to make a complete study of the problems involved and to prepare a concrete proposition which will constitute a working basis for cooperation as between federal and provincial bureaus—each of the latter with a system more or less satisfactory to itself, but providing data incapable of collation with the data of other provinces for a comprehensive national statistic comparable with the vital statistics of other countries.

It may be interjected here that in 1883 under the provisions of the "Census and Statistics Act," the Dominion instituted a plan for compiling and publishing the annual mortuary statistics of cities of 25,000 and over by direct arrangement with the municipalities. The annual reports resulting from this arrangement gave the statistics of mortality by sex, age, conjugal condition, occupation, and cause of death. This system was first applied to five cities—Montreal, Toronto, Hamilton, St. John, and Halifax and later it was extended to twenty-one others. Upon the organization of provincial bureaus of registration this work was abandoned. In many instances the work carried on under this plan of cooperation was not replaced by provincial or municipal organizations.

A few months after the abandonment of this plan for statistical cooperation between federal and provincial agencies, a conference of Dominion and provincial officials held in 1893 passed a resolution calling upon the provincial and Dominion authorities to cooperate in the work of collecting, compiling and publishing the vital statistics of the Dominion. This resolution had, however, no immediate results because, as previously stated, there was no permanent agency to give it effect. Provincial jealousy precluded any one province taking the lead. Each of the old provinces (except New Brunswick, which had no vital statistics) enacted its own legislation on vital statistics and administered such legislation according to its own individual methods. In one province road masters were appointed registrars.

Because some of the provinces did not collect statistics of births, deaths, and marriages and, even more, because of the incomparability of facts collected, of methods of collection, of diversity of forms, and of standards of enforcement, Canadian vital statistics remained extremely unsatisfactory and impossible of collating on a national basis up to 1920.

It was on the principles laid down

in the resolution of 1893 that the Bureau of Statistics in 1918, under the guiding hand of Mr. Coats, Dominion statistician, attacked successfully the problem of nation-wide vital statistics for Canada. The creation of the Dominion Bureau of Statistics and the general statistical organization which was planned as a result provided the primary motive power.

Draft Statistics Utilized

After a thorough canvass of the vital statistical situation in every province, conferences of Dominion and Provincial officials were held in June and December, 1918. At these conferences it was agreed; (1) that the Draft Vital Statistics Act with its annexed schedules prepared by the Dominion Bureau of Statistics should form the basis of the vital statistics legislation of the several provinces, thus securing uniformity of procedure and comparability of results; (2) that the provinces should undertake to obtain the returns of births, deaths, and marriages on prescribed forms, as approved and adopted by the conference. The Dominion Bureau of Statistics to print and supply the forms free of charge; (3) that the provinces should forward monthly to the Bureau either the original returns or certified transcripts; the Bureau to undertake the compilation and publication of the results on national lines. Eight of the nine provinces approved of the plans proposed and have lent every aid possible to make the undertaking successful.

The year 1919 was employed in perfecting the forms, printing and sending them to the various Provincial Registrars for distribution to subdivision officials. Beginning with January, 1920, the returns of births, deaths, and marriages were made on practically similar forms in each of the cooperating provinces and we have reason to hope that Quebec, the pioneer in establishing systems of registration in Canada, will shortly find it possible to reconstruct her system along the lines of the "Model Draft Act" and have returns collected on the standard forms, and so round out a uniform system of vital statistics for the whole Dominion. On this point I have not much fear for Quebec has been noted in recent years for vast strides in modern statistical methods in other fields.

It will be noted that the Dominion Bureau of Statistics prints and supplies free of charge to the provinces, not only the three main forms from which the compilations are made, but

all the other forms incident to a system of vital statistics, such as physician's notices of births and deaths, and cemetery returns. The Bureau has also secured the free transmission through the mails of all statistical returns which are ultimately intended for the Bureau of Statistics.

Free postage is, of course, an absolute necessity if we ever hope to have a better than 90 per cent complete registration. I think it may be safely said that the Bureau of Statistics planned along comprehensive lines. The provinces have not been slow in availing themselves of the advantages the plans projected by the Bureau for collating the vital statistics of Canada provided. No matter how wisely and generously the Bureau planned, the success of the venture was largely in the hands of the provinces, and our present position is a credit to their spirit of cooperation.

First Annual Report in 1921

Owing to difficulties incident to launching a new scheme, perfecting the machinery, and the necessary ironing out of the inevitable unforeseens, the Bureau found it inadvisable to do more than compile a general summary of births, deaths and marriages for 1920—our first year of cooperation. These mimeograph summaries were not generally distributed, but were submitted to the registrars of the cooperating provinces and others interested in vital statistics for criticism and suggestion.

Our first annual report, covering the calendar year, 1921, for the registration area, which comprises eight of our nine provinces, was completed in December, the preparation of it being somewhat delayed owing to the Bureau having undertaken to make all compilations for five provinces. In two instances the request to undertake this work was not made until July. Consequently it became necessary to re-compile some of the tables a second time to obtain the data for the smaller areas which is essential for local surveys. The Bureau gladly acceded to the request and has completed the compilations for these provinces in agreement with the general plan adopted for the publication of the national tables. For five provinces the statistics published by the Bureau and the provinces will be alike in all respects except that the compilations for the provinces will be prepared for counties, cities and towns, while the national tables will only cover the provinces, cities and towns of five thousand and over. For

the other three provinces, which are doing their own compilations, we have exchanged results so that as far as possible the statistics issued by the Dominion Bureau of Statistics and the provincial offices will tell the same story.

For 1921 we issued monthly statements summarizing the results for the eight cooperating provinces. For this year we have had temporarily to discontinue these monthly summaries owing to having undertaken, as noted above, for the Maritime provinces, Ontario, and British Columbia, the compilation of the tables for their annual vital statistics reports.

When the idea of cooperation was first presented to the provinces one of the conditions was that they should undertake to obtain a better than 90 per cent full registration. We believe that in nearly all the provinces they are doing a good deal better than this for deaths and marriages and are well up to the standard for births. We are at present working out a plan to check the fullness of the returns made by each province.

While Canada lagged somewhat behind some countries as regards the collection and publication of national vital statistics, yet when we did commence we envisaged a complete system. Our past and present position may be summarized as follows:

In 1918 six provinces were collecting returns of births, deaths and marriages according to varied legislation and widely differing forms—one province without any and another province with a system so bad that only intermittent reports were issued.

Vital Statistics on 70%

In 1921 the "Model Bill" was accepted by eight provinces as the basis of vital statistics legislation and the returns of births, deaths, and marriages are made on standard forms in these provinces.

In 1922 a system of *Monthly Reports* for Canada is provided for and in operation. Other achievements are: (a) The first annual report* covering eight of our nine provinces is prepared and ready for publication; (b) five of the eight cooperating provinces accepting the Bureau's compilations, thus insuring similarity of results and confidence of the public in the credibility of the statistics; (c) a report covering 70 per cent of the population of any country is fairly indicative of the whole; thus, for the first time an opportunity is provided of comparing Canadian Vital Statis-

*Copies of the First Annual Report will be sent on request.

tics on a national basis with other nations similarly situated.

In all our planning to secure a basis of cooperation as between the Dominion and the provinces which would make possible the collating of the returns from every province into a harmonious national whole, we have always kept in mind the fact that a true national vital statistic is not a mere aggregation of the reported numbers of births, deaths, and marriages from each province, but that it involves a purview of the totality of these phenomena upon which in the last analysis national existence depends. In the first place, the Dominion Bureau of Statistics wished to collate the vital statistics returns of the provinces with the object of revealing their interplay and to discover, if possible, the forces that determine their fluctuations above or below normal; and second, that the statistics of births, deaths, and marriages might be properly articulated with each other so as to give as far as possible a general comparative survey of inter-provincial and international conditions as indicated by a proper presentation of the facts in a single conspectus. The venture has proved highly successful; we have blazed a new trail in our statistical realm which at no distant date will be a well travelled highway where the finger posts will always point in the direction of greater efficiency.

Death Rate from Childbirth Lower in 1921

Death rates of mothers from childbirth or puerperal causes in 1921 were lower than in any year since 1917, compilations made by the Bureau of the Census show. For the nine states and the District of Columbia which constitutes the birth registration area of 1915, exclusive of Rhode Island, the death rate from puerperal causes in 1921 was 6.5 per thousand live births as compared with 7.6 in 1920, 6.8 in 1919, 8.9 in 1918, 6.3 in 1917, 6.2 in 1916, and 6.1 in 1915. The relatively high rates for the years 1920, 1919, and 1918 were doubtless due, for the most part at least, to epidemics of influenza which took heavy toll of pregnant women. The ratio of deaths from childbirth to the number of women bearing children in the year 1921 was about 1 to 150.

Of the 27 states for which figures are available, South Carolina has the highest 1921 death rate from puerperal causes of 9.8 per thousand live births and Connecticut the lowest, 5.3.

Morbidity in the Navy

THE epidemic of influenza that occurred in the United States early in 1922, first made its appearance in the navy among the personnel of ships in New York or in ships which had recently been in New York. The epidemiological evidence indicated that this was a continuation of the epidemic that had appeared in Europe a few weeks previously. According to the annual report of the

6.62 per cent. That the disease was very mild in character is shown by the fact that only ten deaths occurred as a result of this particular epidemic.

Another subject of interest dealt with in the report is the general morbidity of the navy for all causes for the year 1921. The admission rate for all causes was 624.65 per 1,000 per annum. This was lower than the

there were but four years in which the rate was lower than that of 1921. It will be noted from Chart 2 that approximately 70 per cent of the admissions were in classes III, VIII, XII, XVIII, and XXV. "Class XII, which includes only gonococcus infections, syphilis, and chancreoid, caused 19.18 per cent of all admissions; tonsillitis and bronchitis which are included in Class XVIII, caused 10.03 per cent and 7.55 per cent of the total admissions, respectively."

The noneffective rate for the navy for all causes was 34.52 per 1,000 per annum, or in other words, an average of 34.52 men out of every 1,000 were incapacitated for duty each day during the year.

Kansas City has 15,124 pre-school children, 14,844 of whom have been physically examined, according to the charities bureau of the Chamber of Commerce. This is an increase of 7,657, almost 100 per cent increase over last year. Of these children, 5,103 were under standard; 2,644 have been followed up and cared for, 1,842 by families, 802 by family physicians, clinics, or hospitals; 2,136 are still under observation. Only 323 cases are unreported. The work was done at an average expense of 74 cents per child.

The National Health Council has issued an extensive list of health films with their distributor, price, and synopsis.

INFLUENZA EPIDEMIC, U. S. NAVY. JANUARY 7-APRIL 1, 1922. RATIOS PER 1,000

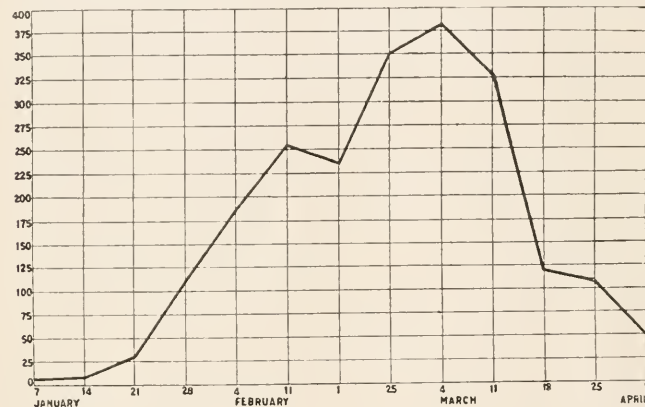


Chart I.—Influenza epidemic, U. S. Navy, January 7 to April 1, 1922. Ratios per 1,000. Admission rates by classes, 1921. Ratios per 1,000.

Surgeon General, U. S. Navy, for the fiscal year 1922, it was first thought from the weekly morbidity rates, as kept in the Bureau of Medicine and Surgery, that February 11 would mark the peak of the epidemic, but soon afterwards reports from the Pacific Fleet were received in increasing numbers, together with reports from ships and stations on the Atlantic seaboard. The peak of the epidemic was finally reached on March 4. Following this date there was a rapid decline in the morbidity rates. The first attack was experienced in the Atlantic Fleet where the highest rates were in January, whereas the highest rates in the Pacific Fleet occurred in February. Chart 1 shows the weekly morbidity rates for the entire navy for January 7 to April 1, 1922.

The average complement for the Navy during this period was 128,951. A total of 5,352 admissions were recorded giving an admission rate of 166 per 1,000 per annum and an attack rate of 4.1 per cent. The attack rate for the 1918 epidemic was 15.08 per cent and for the 1920 epidemic

rate had been for the past three years and during the past twenty-two years

ADMISSION RATES BY CLASSES. 1921. RATIOS PER 1,000.

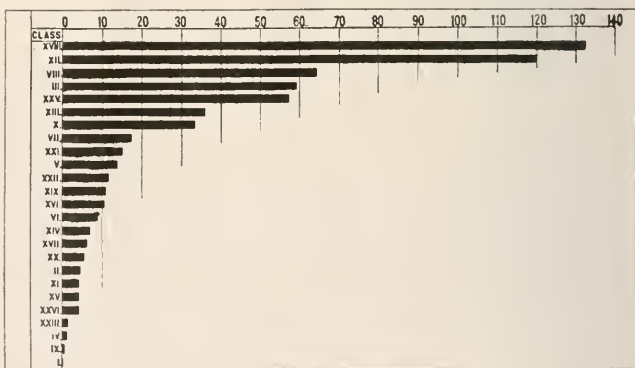


Chart II.—The classification of the diseases and injuries occurring in the U. S. Navy is as follows: I. Diseases of blood. II. Diseases of circulatory system. III. Diseases of digestive system. IV. Diseases of ductless glands and spleen. V. Diseases of ear. VI. Diseases of eye and adnexa. VII. Diseases of genito-urinary system (nonvenereal). VIII. Communicable diseases transmissible by oral and nasal discharges. IX. Communicable diseases transmissible by intestinal discharges. X. Communicable diseases transmissible by insects and other arthropods. XI. Tuberculosis (all forms). XII. Venereal diseases. XIII. Other diseases of infective type. XIV. Diseases of lymphatic system. XV. Diseases of mind. XVI. Diseases of motor system. XVII. Diseases of nervous system. XVIII. Diseases of respiratory system. XIX. Diseases of skin, hair, and nails. XX. Hernia. XXI. Miscellaneous diseases and conditions. XXII. Parasites (fungi and certain animal parasites). XXIII. Tumors. XXIV. Female diseases and conditions. XXV. Injuries. XXVI. Poisons.

Psychology of a Modern Venereal Clinic

Interviews, Records, Follow-up Must Gain Patient's Cooperation

BY BERNARD C. ROLOFF, EXECUTIVE SECRETARY, ILLINOIS SOCIAL HYGIENE LEAGUE, CHICAGO, ILL.

THE ultimate success of any venereal disease clinic depends upon many things. A good impression must be made upon the patient before he arrives at the clinic. If he is referred by a friend who has been a patient the good impression is already begun, but if a washroom notice is depended on to bring patients, its nature and appearance must gain the patient's confidence.

Washroom notices simply tacked to walls soon become dog-eared and dirty. The Illinois Social Hygiene League frames all such notices and nowhere do the words "venereal disease" appear in large or conspicuous letters. Two thousand of these are in Chicago industrial plants. Framing keeps them neat and clean and the wording is such that men and women do not feel guilty when seen reading them.

A clinic which depends on gaining patients through educational work rather than through coercion must study the type of educational work which is most productive. A study of two hundred of our latest cases disclosed as main forces driving patients in for treatment the following:

Sent by former patients, 36%; saw exhibit in city comfort station, 15%; sign on our building, 13%; dispensary notices in public places, 12%; educational work in shops and factories, 9%; referred by outside doctors, 7%; sent by charitable agencies, 4%; sent by state venereal disease bureau, 2%; newspaper article, 2%.

In 1921 conditions had varied. Sent by friends, 49.3%; sign outside, 15%; doctors and hospitals, 8%; city comfort station, 7%; employers washrooms, 5.7%; Municipal Pier, 5.4%; social agencies, 3.2%; miscellaneous, 2.6%; Y. M. C. A.'s, 1.2%; schools and libraries, 1.3%; newspapers, 1.2%.

The patient who comes in because he saw our sign outside the building gets his first impression from the sign, and the exterior of the building; his next from the looks of the entrance hallway, and his third from the appearance of the waiting room. Therefore, we have made all these as inviting as possible. The very atmosphere of the place must breathe friendliness.

The next and very important impression comes from the attitude assumed by the first person met by the patient, who is the admittance clerk. For a time we could not understand why some young fellows entered our front hallway and went right out again. It seems that the first person seen when the outer door opened was a reserved, modest but very pretty young lady stenographer. One look at that girl and many young fellows fled. The prospect of having to tell her what they came for was too much. So we secured a young man instead and changed the location of his desk so that the patient had to come all the way in before seeing anyone.

When a woman enters the clinic the first thing she sees is a sign "Women and Children Upstairs." Arriving there she meets the young woman social worker and may speak to her privately in a cozy little room. I have maintained all along that women and girls should be interviewed by women, treated by women and the follow-up letters written by women, and visits to homes conducted by a woman.

Humanizing the Clinic

The man admittance clerk must be a man to all men. Patients nearly always resent a multitude of questions; they view with alarm the ostentatious filling out of formidable forms. Therefore, the less ostentation and formality the better. A clever interviewer can, by simulating deep interest in a man's job, commiserating with him about the difficult nature of his specific task or the smallness of his pay or perhaps remarking flatteringly about the generosity of it, secure answers to this most difficult question even before he seats himself with the patient.

"By the way, jobs at the mills are rather scarce now," said our interviewer to a new patient even before the latter was aware he was being interviewed, "but some one told me they paid the rollers pretty big salaries." This threw the patient off his guard and in a moment he revealed willingly and even eagerly all the interviewer wanted to know about his job including the amount of his pay. It was easy to remember the details for a

few minutes and to enter them upon the record even before the interviewer had learned the patient's name and address. That patient was, of course, not accepted for treatment but was referred to a private physician because we protect in this clinic, most carefully, the practice of the private physician.

I do not want to bear too heavily upon those who are managers of purely medical clinics. My reasons for stressing the need for careful approach by the interviewer have grown out of our educational work. Our clinic is perhaps the only one in this country, at least that I know of, connected directly with a regional propaganda organization. We begin our attack upon the whole problem by means of education and therefore it is natural for us to treat the patient in the clinic with as much friendliness and give him or her as much attention and heart interest as we would if we had no clinic and the patient came in merely for information.

Our staff has spent hours with single patients having special problems. I gave two hours recently to a depressed patient to keep him from committing suicide. Ordinarily he would have seen the doctor, been curtly sent to a treatment table, treated, and sent home with "come again next week." We and our interviewers act as buffers between the patients and their troubles and between them and the doctor. We interpret the doctor's findings and directions to the patient; we interpret the patient's little worries to the doctor. We smooth the way with kindness; we grease the skids that shoot these afflicted men and women from worry and ill health out into the bright world where life is worth while.

Let's humanize our clinics. Doctors alone cannot do it. A clever medico-social worker can mean the difference between success and failure in a clinic. Tact, kindness and diplomacy are essential.

Our records are not as complete as they should be. We are rushed as other clinics are; our space is at a premium; our staff limited, but we find that we can get many facts—not in a regular interview, but just in be-

tween. Hardly an old patient comes in who is not inquired about kindly every time he comes—his family, his work, his ailment.

We have simplified our follow-up in this way: Every patient is checked through a cash register. That machine is part of our bookkeeping system. I have seen doctors throw their hands up in horror at that cash register. It has even been made the subject of complaint at a medical meeting. But it serves a purpose far beyond the taking in of a little money. It is part of our follow-up system. A patient enters on his first visit. After the interview he is checked through the cash register whether he pays or not. The little slip that comes out is handed him and he is told to return it to the admittance clerk before he leaves the clinic. After treatment, he being a new patient is likely to pass by the clerk, dropping his cash register slip and start for the door. Right then and there begins our follow-up work. "Wait a minute," calls the clerk, "What day did the doctor say you were to return?" "Why, I don't know, I never asked him" is the reply almost invariably given, even though the doctor actually *did* tell him when to return. "Go back and find out" the clerk urges. The patient seldom or never forgets after that to ask the doctor when he is to return. He cannot get out of the clinic without reporting the date of his next visit. This helps him to remember the time definitely. The clerk enters the date upon the little slip and puts it in the cash register drawer. The next day every one of those dates are

entered upon the little square in the follow-up record with a single pencil line.

Suppose that the same patient returns a week later, but not upon the right day. With the follow-up record before him the clerk asks, "You were due to return here Tuesday. This is Wednesday. Why are you a day late?" "Well, I had a date Tuesday." Right then and there he gets a friendly admonition on the great importance of regularity in attendance and how much more quickly we can help if orders are obeyed. And that patient and every patient gets the same persistent treatment.

At the end of the month all the cases that were due and did not come in that month are separated and gone over carefully. Those cases which are active and infectious are separated from the ones which have been discharged, given vacations, or who need not be followed up. Letter No. 1 is written on plain paper in a plain envelope. My own name and address is all that appears upon the notice. A curious landlady could steam the flap of such a letter and get nothing for her curiosity. This protects the patient. The second letter is more urgent. The third is upon our letter head and frankly, but in a kindly way, threatens reporting the case to the health department.

Here is some interesting data on how our system works. In 1919 we had no social work. In December, 1919, out of 430 cases, 146 failed to return. In January, 1920, a social worker was engaged.

The first letter brings back 50 per

cent of the cases absent without leave; the second 25 per cent more, and the third 20 per cent more. About 5 per cent of those absent without leave do not come back.

The final follow-up is, of course, a health department job. If we know where a patient works, if he works, it is easy enough to appeal to the employer, but that is seldom necessary.

TABLE SHOWING HOW SOCIAL WORKER DECREASED FAILURES TO RETURN FOR TREATMENT.

Month	Patients Treated	Failed to Return
January, 1920	548	154
February, 1920	435	80
March, 1920	595	48
April, 1920	532	56
January, 1922	600	6
February, 1922	620	4

Human service pulls heartstrings. Any good clinic having good medical service fortified by the right sort of social service may, by securing co-operation of patient through the exercise of common sense and kindness, make a success of its task,—that of restoring to industrial and familial efficiency the unfortunate victims that come to it. Our task is not complete when we merely sterilize a patient so as to render him non-infectious; we must do a complete job or the expensive medication and service originally given are almost wasted. We aim to keep our syphilitic patients in sight for five years. Our clinic is now treating case No. 10,000, but cases Nos. 4, 36, 175, 200, 301, who began treatment in 1918, and many more, scores of them, are still coming for treatment or periodical examination.

The County General Hospital

THAT county general hospitals, authorized by state laws and supported by tax levied on the people of the community, are helping solve the rural medical problem is attested by the success of four county hospitals established since 1918, three in Missouri and one in Kansas. These hospitals are modern in every detail and are open to all legal practicing physicians.

The hospitals of Audrain, Boone, and Callaway counties, Missouri, located at Mexico, Columbia, and Fulton respectively, were established under a law, modeled after the Iowa and Indiana statutes which passed the Missouri legislature in 1917. Provision is that any county may vote bonds and a tax for the erection and maintenance of a county hospital,

trustees to be non-partisan, and practice in said hospitals to be open to all practicing physicians.

The Boone County hospital at Columbia, Mo., was opened December 15, 1921 and in the first five months of service received 275 patients. Service and equipment includes a staff of graduate nurses, a superior culinary service, an x-ray department, and laboratory. The Boone County Medical Society supplies a volunteer visiting staff. Quarterly alternating services are maintained in internal medicine, general surgery, obstetrics, pediatrics, genito-urinary and skin, gynecology, x-ray and laboratory. The society also supplies lecturers on public health and preventive medicine and volunteer inspectors of public school children. In the staff meeting room on

the fourth floor of the hospital are held the meetings of the county society; the room is open to any meetings with a health aim.

An example of a successful county hospital in another state is the McPherson County hospital, McPherson, Kas., which was constructed at a cost of \$152,000. In speaking of its work, Dr. L. F. Quantius says:

"Country people are entitled to as efficient medical and hospital service as are city people. The county hospital supported by public taxation and open to all members of the community seems a logical remedy for the lack of adequate medical service. It can give our physicians and surgeons facilities for special training and serve also as an invaluable center of health education."

Colorado's Station to Station Clinic*

By ELLA CYRENE BAKKE, PUBLICITY SECRETARY, COLORADO TUBERCULOSIS ASSOCIATION, DENVER, COLO.

WE HAVE heard of traveling clinics in some states where children are examined while the truck waits, but a station to station clinic has recently been demonstrated in three Colorado towns. No single state agency could have financially afforded to conduct such a demonstration, but the extension division of the University of Colorado, cooperating with the Colorado child welfare bureau, the state board of health and the Colorado Tuberculosis Association, was able to carry on two-day community conferences and exhibits in the towns of Limon, Elizabeth, and Castle Rock. These three towns were chosen for experimentation in order to decide upon a satisfactory method for a state organization to serve a small community. Another reason for choosing them was that they were so located as to make them conveniently accessible for the transportation of equipment.

The plan for a week of such conferences was briefly this: The University extension division, through its secretary, Charles I. Madison, made the first contract and secured a guarantee for \$50 to cover local expenses. The proposition was presented to commercial clubs, Lions clubs, women's clubs and other organizations, including school boards and churches. After a great deal of persuasion and explanation that these four agencies were not working for any personal gain and that the visiting physicians were not looking for business, local committees were formed in each town to make arrangements to carry on the publicity and to assist the state workers. Program for the meetings in each town included: (A) Conference on child welfare, public health, community problems; (B) free physical examination of children under school age and as many of school age as time permitted; (C) exhibits dealing with child welfare, public health, recreation.

The conference opened the first evening with an address by Mr. Madison on community leadership, emphasizing the community's health, recreation, and attractiveness. The phase of the community's health dealing with the school child was presented by Miss Bakke, publicity secretary of the Colorado Tuberculosis

Association, in an illustrated lecture on "Nutrition for Children." She suggested the nutritional class method for developing the underweight child and advised mothers to have their children examined and to provide rest periods and lunches for them.

The physical examination of children was certainly the most spectacular part of the conference. Three child specialists from Denver were employed by the child welfare bureau to examine the children one morning in these three localities, Dr. R. P. Forbes at Limon, Dr. J. C. Savage at Elizabeth, and Dr. Elsie Pratt at Castle Rock. A total number of 154 children were examined by these physicians: Limon 50; Elizabeth 71, including 24 high school children; and Castle Rock 33. (Dr. Savage remarked about the eagerness of high school children to be examined.)

Results were very similar in each locality. The condition of the babies was usually very good, but about one-half of the children from two years to high school age were underweight. Children examined were selected by their teachers or parents and therefore cannot be considered the average. It would probably be safe to conclude that if all the school children had been examined, one-third of them would have been found 7 per cent or more underweight.

Find Bad General Habits

During examinations, opportunities were given to parents to discuss with physicians and assistants the care of their babies, removal of defects, and general nutrition. Conference workers were amazed at the large number of children who had to get up as early as five and six in the morning to help with chores before they caught the transportation bus to the nearest consolidated school. It was gratifying to learn that in the town of Elizabeth, the primary teacher offered to make arrangements for a rest room in the school where not only the underweight children would be required to rest but also those whose working days were from five in the morning until nine at night.

Physicians found that while the general appearance of the children was cleanly, dirty teeth and dirty finger-nails predominated, and the general health habits, such as irregular eating, candy between meals, tea and coffee, home study and over ac-

tivity, prevailed. Although the retiring hour was earlier than in Denver, there were very few children even among the pre-school group who took rest periods during the day. Lack of home control was ever present. Children of the leading citizens were just as much underweight as those of the three dollar a day laborer.

At the afternoon meetings the physicians gave very practical and understanding summaries to the parents of the conditions they had found. They discussed in seminar fashion the problems of individual children whenever the parents requested it. In a friendly yet dignified manner they made the mothers realize that they were guardians of their children's health and should begin by teaching them sane and regular health habits.

Closely correlated with the summary of the physicians were the talks given by Mrs. Dick of the child welfare bureau on the "Colorado Plan for Maternity and Infancy" and Miss Livsey, state supervisor of nurses, on "Why a Baby Conference." The former explained that the Sheppard-Towner act provides funds for the care of mothers and babies when the amount is met by a state appropriation. Because of Miss Livsey's experience as a county nurse in Colorado for four years, she was able to give the mothers many valuable suggestions. The fact that she had been able to check an epidemic of smallpox by discovering a teacher in a rural school broken out with the disease could not help but emphasize the value of a nurse in the community.

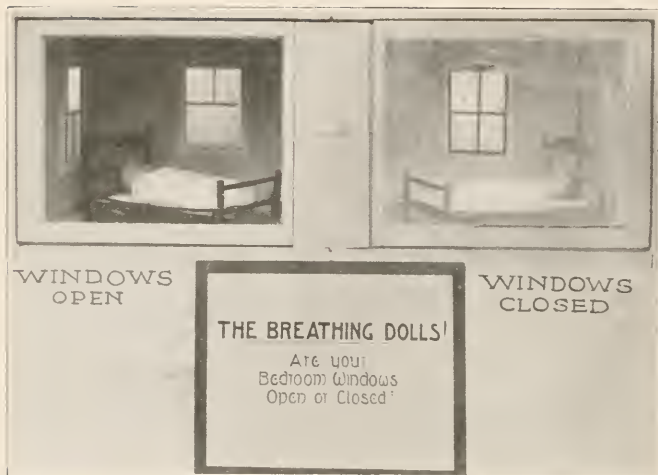
Mrs. Matthews, executive secretary of the child welfare bureau, gave a resumé of the children's institutions throughout the state and cited several cases where the bureau had been responsible for the treatment of crippled children. She emphasized the importance of birth registration.

Mechanical devices and posters not only served to attract attention, but illustrated the concrete work of the organizations. A member of each organization was in charge of her exhibit to explain in detail material represented.

Members of the conference feel that having five trained workers and one physician spend a day and a half conducting health conferences in a small community has been worth the time and expenditure.

Such a conference made a demon-

*Read before the Colorado Community Conference and Exhibit, Limon, Colo., November 20, 21, 1922.



Among the exhibits used by the station to station clinic were the breathing dolls. Fumes representing exhaled carbon dioxide were pumped in equal quantities through the nostrils of both dolls. The pictures point the lesson.

stration to the community of the importance of the individual's responsibility to the community's health, awakened local citizens to the actual needs of the children, and taught them methods of caring for them.

An awakened interest in measures of public health and the possibility of carrying on a definite piece of work has resulted from the conferences. The outcome will doubtless be some permanent health work, community or county nurse, health center, monthly clinic, nutritional classes in the schools, hot lunches, and other health

work in the schools. If but one child's health has been saved, the work has been worth while.

The experience of that week was decidedly educational to the workers themselves. They all agree that some uniform examination blank should be adopted, simple in phraseology and explanatory to the parent as well as detailed enough for the physician. They further agree that the technic of the clinic should be worked out systematically in order to secure maximum results with a combined staff of trained and untrained workers.

Eye Clinic Follow-up Work

ALTHOUGH medical science has progressed far in the development of methods of treatment for diseases of the eye, it is common knowledge that much preventable blindness exists. With a view to ascertaining present conditions and developing desirable standards, leading ophthalmologists of the city of New York have organized as the ophthalmological section of the Associated Out-Patient Clinics, with Dr. Walter E. Lambert as committee chairman and Dr. Conrad Behrens, Jr. as secretary. The study was made under the supervision of the committee by Dr. Gertrude E. Sturges and Miss Elizabeth Tandy of the staff of the Associated Out-Patient Clinics.

To discover the proportion of typical cases of eye diseases which lead to blindness unless properly cared for

a study was made of 5,200 records from five representative eye clinics in New York including the Cornell Clinic, Manhattan Eye, Ear, and Throat hospital, Mount Sinai Hospital, New York Eye and Ear Hospital, and New York Post-graduate Hospital. To allow sufficient time to have elapsed for the clinic to have disposed satisfactorily of the cases, records of the patients who had visited the clinic for the first time at least one year previous to the date of inquiry were studied.

A lack of uniformity in records was one of the most salient defects discovered in the various clinics. Records revealed that a patient rarely made more than two visits. One hundred and three of the 193 cases presenting the selected eye conditions are recorded as attending clinic once, 22

attended twice, 38 attended from three to five times, 15 attended from five to ten times, 10 attended from 10 to 20 times, five attended over 20 times. Of the cases with these serious eye conditions which might bring on permanent blindness, 53.4 per cent attended the clinic only once. Only 15.5 per cent attended more than five times. The same point is brought out still more forcibly in the instances of certain especially serious diseases. This failure of the patients to return for further treatment is a stigma of failure on the part of the clinic in the opinion of the investigators. The records showed slight evidence of any attempt to insure proper care of the patient beyond the filling of prescriptions for drugs and glasses, and very little appreciation of the need to protect other members of society from infection.

On the basis of these findings the committee of ophthalmologists has adopted the following recommendations: (1) Systematic follow-up to insure continued treatment for at least the following types of cases should be instituted: optic atrophy; conjunctivitis (purulent); choroiditis (tubercular); corneal ulcers; glaucoma; iritis; interstitial keratitis; phlyctenular keratitis; tubercular keratitis; retrobulbar neuritis; sympathetic ophthalmia; papillitis; papilloedema; diabetic retinitis; pigmentosa retinitis; syphilitic retinitis; sarcoma of the choroid; trachoma; uveitis; (2) physicians should be responsible for seeing that the patient is informed of the nature of the trouble and the importance of treatment, and for deciding on what date the patient should return; (3) the social service department with such clerical assistance as is necessary should note the name of the patient whose return is desired and through the proper methods endeavor to secure his return at the date specified.

Seek More Care for Ohio's Feeble-minded

A proposal to amend the General Code of Ohio provides that the Director of Health "shall be appointed by the Public Health Council, by and with the approval of the Governor, to serve for a term of five years and until his successor is appointed and qualified." The present law provides for appointment of the state health director by the governor.

Another line along which public health legislation is foreshadowed in Ohio is the more adequate care of the feeble-minded.

The Play Street Prevents Child Accidents

Health Departments Can Reduce Traffic Casualties to Children

By ALBERT S. HYMAN, M.D., SUPERINTENDENT, MOUNT SINAI HOSPITAL, PHILADELPHIA, PA.

HOSPITAL administrators and executives are standing aghast at the appalling casualty lists which daily fill the accident wards of hospitals located in large cities. The grist of crippled and mutilated children, the toll of street accidents in busy congested districts has increased so rapidly that it would almost appear that the common diseases of childhood have been displaced from the wards of the general hospital by traffic casualties.

Records of hospitals situated in congested sections of large cities show invariably that a large percentage of traffic accidents occur to children. At Mount Sinai hospital, for example, 70 per cent of all street accidents occur to children under ten years of age. What is more dismaying, perhaps, is that 91 per cent of all deaths from street accidents occur in children. Hospitals similarly situated in other cities show approximately the same figures.

Safety-first campaigns apparently have not awakened the reaction which was anticipated and the slaughter of the streets increases. The toll of little lives sacrificed to the juggernaut of speed must force those interested in the preservation of life and safety to immediate action; for what availeth it to save one child from contagious disease only to have ten lost upon the streets of a busy city.

Solving the traffic casualty list is a movement which should be supported by all public health officials, yet it is disappointing to relate how little attention has been directed toward this menace to child life and how much time has been devoted to the remote causes of mortality among children.

A case is called to mind of a child carefully watched and treated for a nutritional disturbance by highly paid social workers. For two years this child had received the most scientific care and advice. Comes a day when the child is playing with his ball upon the street; a motor suddenly sounds its horn; the brakes grind—but it is too late. Another little life is snuffed out.

The death was reported to the public health agency that had carried the boy along for those two years and the

"More children die as a result of traffic accidents in Philadelphia every month than have died of rabies in the last ten years, yet the machinery for control of rabies is most elaborate and public health literature upon the subject is voluminous.

In contrast, how little have public health officials done to solve the death toll of city streets and how scanty is the literature upon it. . . . Prevention of traffic accidents in large cities should be just as much a part of any public health program as prevention of mosquitoes in rural communities."

only manifestation of concern at that agency was the act of removing his history card from the active files. On the same day, however, the death of another child under the agency's care from a nutritional disease caused the most profound consternation and the greatest activity among the clerks, social workers, and doctors. A special report was written and closer follow-up work was planned.

Two deaths had occurred; the one from a traffic accident and therefore without interest, the other from a nutritional disease and thus fraught with dire significance. For the first, there was no thought of future prevention; for the second, that it must not happen again! Yet the deaths from street accidents to children outnumber the deaths from nutritional diseases in that agency by 30 to 1!

The problem is a serious one. Not too much blame must be placed upon the motorist, although there are many that are prone to forget that little children have just as much (legal) right to play upon the public thoroughfares as the motorist has to ride upon them. Often the street is the only playground that a little one knows of.

On the other hand, the motorist has many a vexatious experience in passing through such thickly congested districts. Sounding a horn means very little to children who hear such warnings all day long and their indifference to the oncoming vehicle has caused alarm to many drivers; occasionally little imps prance with glee in front of the automobile, daring the driver to touch them. The human mechanism is not always perfectly



Underwood & Underwood
Seventy per cent of all street accidents and 91 per cent of all deaths from street accidents at Mt. Sinai Hospital, Philadelphia, occur in children. This boy narrowly escaped being one of the 70 per cent when he fell from his bicycle almost in front of an automobile.



Underwood & Underwood

New York's committee on recreation and playgrounds has closed certain streets in congested tenement districts to give children play space. Stanchions warn motorists to keep off.

coordinated; less so is the mechanism of steel and iron. A brake fails to hold, the steering gear does not respond quickly enough, and another little victim is added to the hospital's casualty list.

Whose Problem Is It?

It would appear to be a serious indictment against any public health program that does not take cognizance of this problem. More children die as a result of traffic accidents in Philadelphia every month than those that have died of rabies in the last ten years, yet the machinery for control of rabies is most elaborate and the public health literature upon the subject is voluminous. In contrast, how little have public health officials done in solving the death toll of city streets and how scanty is the literature upon it.

Many are the reasons given for the tardiness of public health departments in not recognizing the problem. The most common answer is that the prevention of traffic accidents is not clearly a phase of public health work, but rather that this lies within the police power of the city. Again, that public health programs are concerned only with prevention of disease. Some communities have not created a department of public safety, with the resultant confusion in placing the responsibilities of preventing such accidents, particularly in regard to children. Whatever has been responsible for the delay in recognizing the importance of traffic accidents, it should be immediately dissipated by recalling the statement made by Prof. Milton Rosenau of Harvard that

"public health and disease prevention mean the diminution of all causes of premature deaths." Prevention of traffic accidents in large cities should be just as much a part of any public health program as prevention of mosquitoes in rural communities.

Any method which will focus the thought of public health officials upon this problem and which will awaken the same enthusiasm for its solution as has been exhibited in the already conquered fields of typhoid and yellow fever prevention, will, it is certain, be greeted with jubilant relief from terrorized parents who daily watch the ghastly toll of their little ones beneath the wheels of an ever increasing vehicular traffic.

Of the pitifully few plans for the prevention of street accidents to children, the one most worthy of consideration is the playground street. The playground has ever been considered a legitimate part of public health work, and most cities possess fine playground systems. But such organized playgrounds are only accessible to the immediate neighborhood, so far as the small child is concerned. No parent is willing to send his child more than two blocks to a playground, and as a result the child is allowed to play on the street near his home.

The Playground Street

On the other hand, most municipal playgrounds are used by children over the age of ten. Let us recall at this point that 70 per cent of all street accidents occur in children under ten.

The conclusion seems to be obvious; if the playground is to be used as a means to prevent traffic accidents it must care for the child under ten, and not the child over this age. It means not an increase in the number of organized playgrounds, for no city can afford the space which would be required, but it means that the solution lies in bringing the playground to the child and not the child to the playground.

In matter of practice, a playground street is a city street which is blocked to traffic during certain hours of the day. Deliveries to houses within the street are permitted. The ends of the street are protected with iron stanchions. Streets where large numbers of children live and where there are



Underwood & Underwood

Side streets free from important traction lines afford a safe place for children to play and reduce accidents, New York police records show.

no important traction lines or fire runs are usually selected. Requests for the closing of streets usually originate from residents of the street, who in the City of New York, forward a petition to the Mayor's committee which was created for this purpose. An investigator then ascertains how many residents are willing to have the street closed, and how many are against closing it. He is governed by the majority.

New York is apparently the only large city to attempt this method of preventing street accidents among children. One hundred and thirty-two such playground streets have been created in New York; Philadelphia has had two such streets, and more are contemplated. The figures given by the New York police department

indicate that the reduction of such accidents has been remarkable, and the remedy has been so simple. Indeed, the simplicity of the playground streets is undoubtedly the reason why it was so difficult for it to be originally conceived, but having been conceived and proved successful, it should receive attention of all interested in this most recent of community hazards to child life, the juggernaut of speed upon the streets of our large cities. Let all public health officials and those devoted to children's welfare work bend all effort to induce the authorities in every large city to consider this or some other plan for reducing the terrific casualties resulting in death or permanent injury—day by day in every hospital in increasing numbers.

fronting on them. Many had small service alleys down the surface of which drainage from the 60,000 houses flowed. Today about fifteen miles only of such streets remain in this condition. Pavement on alleys which formerly were open sewers has increased from 5,490 square feet paved in 1915 to 130,976 in 1920.

Driving the pigs from the city of Philadelphia was another sanitary triumph of the commission. The first authentic census reported about forty thousand pigs within the city limits, thousands of them near schools, churches, and homes. Nearly all of these were fed on Philadelphia garbage carted through the streets. Vast areas were made foul by slovenly care given to the sties and by the disposal of muck therefrom. In sections of the "neck" cleanings were scraped from the pens into the swamp until it was filled above water level. Then the pens were moved further into the marshes and the process repeated until more swamp was filled, while over the old habitation a coating of cinders was spread, piles driven, and houses to hold families built. Today this has been stopped and it is doubtful whether forty pigs can be found within prescribed areas.

The slaughter house situation has also been remedied. Ten years ago a survey of small slaughter houses revealed illegal killing, cutting of animals that had died a natural death, slopping of freshly cut meat in offal

Housing and Municipal Health

MUNICIPAL sanitation is the foundation of personal health.

At least the Philadelphia Housing Association has found a direct correlation between the decrease in death rate and disease statistics and remedial sanitary conditions. Bernard J. Newman, director, says in his report:

"Housing and sanitary conditions have been far from satisfactory in Philadelphia but during the past decade great strides have been made in municipal sanitation. Without attributing an undue credit for the gains in public health to sanitary changes, the lowered death rate could not have been brought about had not municipal sanitation kept pace with other progress in the field of preventive and curative medicine."

Philadelphia is a healthier city in which to live now than it was a decade ago, states the report. In 1910 the annual deathrate was 17.29 per thousand population and the infant mortality rate was 135.28 deaths per thousand births. In 1921 the annual death rate was 12.55 and the infant mortality rate 77.8. This difference in deathrates means saving the lives of 8,846 persons who, if the 1910 rates prevailed, would have died in 1921. Such rates did not prevail because living conditions and other safeguards to public health have improved. Some of these improvements include not only the completion of the filtration plant and the distribution of a potable water to all sections of the city, the extension of the drainage system, better service in the storage and removal of insanitary wastes,

improved housing, extended sanitary inspection and similar potent factors in sanitary living, but also more spectacular changes.

Thus a decade ago Philadelphia had over 60,000 privy vaults. Since then over 45,000 of these fly-breeding and vermin-spreading cesspools have been cleaned, filled, and abandoned. Akin to this was the unsewered condition of built-up streets. At one time there were 135 miles of unsewered streets in the city with dwellings



A typical overcrowded room, housing five ship builders and a fourteen year old boy, discovered in the Philadelphia housing survey. Close proximity of sleepers and inadequate ventilation aid in spread of respiratory diseases.



Slovenly disposal of rubbish, garbage and ashes and defective outdoor water closet, constantly menacing health, have been banished in Philadelphia's cleanup campaign.

on the killing floor, tuberculous men handling and dressing beef. There were then 156 small abattoirs widely scattered and inadequately inspected; today over one hundred of these have

been eliminated and of the 47 that remain 12 kill under Federal supervision. A city abattoir is a sanitary need and one which will pay for itself, Mr. Newman points out.

Chicago Dental Society

WHAT is announced as the largest gathering of dentists in the history of the world met in Chicago during the fifty-ninth annual clinic and meeting of the Chicago Dental Society. Nearly ten thousand dentists were registered, representing every state in the Union as well as Canada, England, France, Belgium, and Australia.

The keynote of the conference—the conservation of health in dental practice—was the subject of the address

by Dr. Arthur D. Black. The connection between neglected teeth and systemic disease was fully established ten years ago, said Dr. Black, but the progress made toward removing the health menace of mouth infections is not sufficient to promise that it can ever be accomplished by present methods. All the dentists working all the time cannot keep pace with repair work. Much more consideration, therefore, must be given to preventive methods, especially the simple

and effective means of caring for the deciduous teeth.

As a comprehensive preventive program involves the professional supervision of the child from the age of one to eight years at three month intervals, and at six month intervals after that if all is well, some means of community service must be provided to care for the whole population. Announcement was made that this community need is about to be met in Chicago by the Chicago Dental Clinic, made possible through Pageant of Progress funds.

The administration of this service has been evolved from a preliminary survey made of existing services of this kind. It will include: (1) Dental hygienic instruction in all schools; (2) several dental centers where dental services of all kinds will be available; and (3) a limited number of isolated dental clinics available for outlying districts. The plan is to be developed so that within five years two hundred dental chairs will be devoted to caring for the teeth of poor children, and one hundred dental hygienists will be employed by the public schools.

Beginning has been made by the Northwestern University Clinic which is now operating fifteen chairs. The Dental Clinic would devote certain assigned space to senior students of every dental college in the city, where work would be done under proper supervision, thus making internships available for teaching purposes. The advantage to science—both general and special—in continuous records of all children, with radiographs of mouths, is apparent. Research on the basis of such records would register a much greater percentage of success than could obtain under other conditions.

Another phase of preventive dent-



Front elevation of building to be erected in Chicago to house a dental clinic of proportions heretofore not attempted. Under a plan fostered by the Chicago Dental Society it is expected that two hundred dental chairs and one hundred dental hygienists will be devoted to complete and continuous dental supervision of all school children in the city of Chicago.

istry was discussed by Dr. Vilray P. Blair of St. Louis. He stated that more than 50 per cent of cancer of the face and mouth can be eliminated in the pre-cancerous stage, and that the dentist's responsibility is considerable in enabling the early detection of mouth conditions in which chronic irritation is the precursor of cancer. The day is past when the dentist can safely ignore the health implications of bad mouth conditions. The cry is for more dentists, for more and better dental surgeons, for wider prophylaxis, and for that trained, alert ob-

servation on which early diagnosis of complicating conditions must depend. "If every patient having a cancerous degeneration were treated in time," Dr. Blair said, "50 to 75 per cent of cancers of the mouth could be cured without risk of mutilation."

The legislation that is to be proposed to the Illinois legislature was discussed by a joint session of the committee on legislation of the Illinois Dental Association. The tentative program includes a general revision of the dental act, and a law for licensing "dental hygienists."

ranged by tying a cord across and draping sheets over it. Such an arrangement insures privacy where each child can be undressed and examined one at a time. The younger children are divested of their upper clothing and covered with large turkish towels. When it is necessary for them to remove their shoes, and this is always done when they are weighed and measured, they are furnished with socks to slip on over their stockings. Older girls simply have their clothing loosened sufficiently for the physician to examine their hearts and lungs. Such an examination is not complete, but is all that can be attempted by the present.

Following the examination, parents of the children are notified by card of any defects found in their children and are urged to have these defects corrected. A congratulatory card is sent to those parents whose children are free from defects. In about six weeks or two months, the nurse again visits the school to find out how many defects have been corrected. Where no attempt has been made at correction, the nurse visits the home and emphasizes the importance of remedying the defects, and urges the parents to get the advice and assistance of their family physician. In needy cases, the nurse and teacher cooperate in trying to obtain free medical attention.

A chart with the name of each child is placed in the school room. The chart is divided into headings: Eyes, ears, nose, throat, mouth, skin, chest, nutrition, orthopedic, mental, vaccination. Blank spaces are left for additional notations. Any child found perfect in regard to these different headings receives a gold star for each perfection. A vacancy on the chart shows a defect to be corrected. The object of this score card is to bring a visible reminder to the child to get a gold star after his name under each heading. In consequence of this score card, children are bringing intensified effort on home folks to have their defects corrected, in order to have stars appear under each heading of their chart. This it is believed will lessen the number of visits of the nurse to the home in follow-up work and will enlist the cooperation of the child and his parents.

A few results of medical inspection during last school year are mentioned in order to show the great need for it in this state. Of 15,098 children examined, only 1,164 were found free from defects. There were 1,191 cases of defective vision, and 191 cases of other eye conditions; 5,038 children

Delaware's School Inspection

MEDICAL inspection of rural school children of Delaware has been made possible through the cooperative efforts of the Medical Society of Delaware, the Delaware State Dental Society, the Delaware School Auxiliary Association, American Red Cross, state board of education, and the child welfare commission of Delaware. During the school year of 1921-22, the Delaware School Auxiliary Association furnished funds amounting to \$4,300, which was used to pay for medical services and printing, and \$6,700 which was used for the operation of the dental unit. The American Red Cross furnished nursing service for the schools of New Castle County, exclusive of the city of Wilmington, with the exception of Blackbird Hundred. Blackbird Hundred and the other two counties of the state, Kent and Sussex, were examined by nurses of the child welfare commission, and the director Dr. William J. French, served as state director of medical inspection for the state department of public instruction up to the time of his resignation and leaving Delaware just a month ago. The state medical society, through a committee of three, nominated the physicians who made the examinations and supervised the work from a professional point of view. The dental society, also through a committee of three, supervised the work of the dental unit.

The Red Cross has this year ceased giving nursing service for the medical inspection of school children, and the entire burden of the nursing service falls upon the child welfare commission. The Delaware School Auxiliary Association is giving \$3,000 for medical services, printing, etc. When this sum is exhausted, the child welfare commission will assume all financial obligations. The dental unit,

however, will be supported this year by the Delaware School Auxiliary Association, which has contributed \$7,200 for this work. It is not expected that this sum will be contributed after the school year 1922-23.

The nurses endeavor to examine first those schools which are situated furthest from the main highways and good roads and to leave for bad weather period the schools which are more easily accessible. The general method of procedure is for the nurse, after arranging a date for the examination of a school with the local board, to visit the school in the morning, taking with her equipment needed, such as scales, measuring tapes, Snellen's test charts, tongue depressors, sheets, towels. After obtaining certain routine information about the child, such as the name, address, which is entered on a physical examination form and filed in the school, she proceeds to weigh and measure him, examine his skin, hair and teeth, ask as to use of toothbrush, and make simple tests of sight and hearing. These observations are likewise entered upon the examination form. The same afternoon, the physician visits the school and with the assistance of the nurse makes a thorough physical examination consisting of investigation as to the following:

Defects auditory apparatus; defects visual apparatus; nasal defects; throat affections; heart disease; pulmonary disease; mental and nervous disease; orthopedic disease; speech defects; spinal defects; skin and scalp conditions; nutrition; mentality; other defects or deformities.

Great care and circumspection has been used in making these examinations. Many of the schools are small, sometimes only one room, and it is necessary to use one end or corner as an examination room. This is ar-

had enlarged tonsils, and 3,276 children were undernourished.

Due to various epidemics among the school children and also to the fact that several of our nurses contracted influenza last winter, medical inspection of all the rural schools was not completed. This year we expect to be able to complete inspection of all the schools, and this involves, according to our estimation, the medical examination of about 25,000 children.

The Dental Unit has already been mentioned. This consists of three dental hygienists who have the use of a truck for transporting equipment to the various schools. The same method of approach to the schools is used as with the medical examination. The hygienists give a simple talk to the children, demonstrate the use of the toothbrush, have a toothbrush drill, and then set up the chairs and proceed to examine their teeth, giving prophylactic treatment. Where trouble is found to exist, cards are sent to the parents urging them to send their children to their family dentist.

Of 2,023 pupils examined and treated last year, 1,888 had defective mouths, leaving only 135 or 6.67 per cent with perfect mouths.

The unit is truly popular, not only with the children, who sometimes fight to be "next," but with the school principals also. Many requests are made for the unit, and it is unfortunate that only a small number of the schools of the state can be visited by the dental hygienists each year. The parents also appreciate the services of the dental unit and are sending their children to the dentist as a result.

The state department of public instruction has backed the work of medical inspection and of the dental unit in every way, and is thoroughly in accord with the child welfare commission that this work should be made a permanent part of the educational program.

It is hoped that this session of the state legislature will see the passing of a law to amalgamate the various health agencies now operating in Delaware. At the present time, however, the several health agencies operate as separate units.

International Conference on Sera

The second general conference for the standardization of sera and serological tests, held from November 20 to 26 at the Pasteur Institute in Paris, under the chairmanship of Prof. Dr. Th. Hadsen, director of the

Danish State Serum Institute and president of the League Health Committee, was attended by representatives of the chief sero-therapeutical and bacteriological institutes of Austria, Belgium, Denmark, France, Germany, Great Britain, Japan, Poland, Roumania, Russia, Switzerland, and the United States.

The conference confirmed the agreement on the standardization of antidiphtheria and anti-tetanus serum units arrived at in the Geneva conference of September, and collated the results of the research work undertaken on anti-meningococcus, anti-pneumococcus, and anti-dysentery sera, and on the sero-diagnosis of syphilis.

Ever since the method of immunization and cure by serum injections was discovered great practical difficulties have been met with, owing to the effect that the methods for measuring and testing the strength of sera had been built up in different ways, often on entirely different principles, in the bacteriological laboratories of different countries, sometimes even in those of the same country.

Introducing uniformity into the methods of different laboratories would allow of a fuller exploitation for the purposes of curative and preventive medicine. But although this was realized even before the war, all attempts to overcome the difficulty had broken down on the question of securing sufficiently prolonged and close cooperation among a sufficiently large number of laboratories and institutes from different countries.

For this reason the matter was taken up by the League Health Organization which seemed peculiarly suitable for uniting and co-ordinating the efforts of a great many separate national institutes. It was at the instigation of the League Health Organization that the first conference was held in London in December, 1921, and drew up the program of joint work that has been carried a long step further at the Paris conference just concluded.

The Present Crisis in Russia

The most remarkable fact about Professor Tarashevich's report on Epidemics in Russia since 1912, appearing in the 5th or October number of the *Epidemiological Health Bulletin*, is the author's statement that "Russia may consider herself fortunate if she emerges from the present crisis with the loss of only 20 to 25 per cent of her population." The crisis is described as not only political

and economic but biological, because of the disturbances which it has caused in the whole domain of human physiology and pathology. Thus, not only are epidemic diseases such as typhus, relapsing fever, intestinal infection, malaria and scurvy, which have always existed in Russia, aggravated both in prevalence and virulence, but nearly all other epidemic infectious diseases have been greatly increased, hitherto unknown diseases have been observed, and there has been a quasi-epidemic extension of many non-contagious diseases, such as disorders of the nervous system and the heart, general functional disorders, etc. Behind all stands the famine, which not only causes millions of deaths in itself, but predisposes whole populations to sickness and death by disease. The very stamina and physical standards of the Russian race, the biological basis of Russian society, have been pulled down by the events of the past few years.

It is becoming more and more necessary that Europe should aid Russia. If such aid is not forthcoming Russia, thanks to her natural resources, will ultimately triumph over her present troubles, but after a much longer time and at the cost of countless lives.

Bundeson Appoints Health Advisory Staff

Dr. Herman N. Bundeson, health commissioner of Chicago, has appointed the following advisory staff: laboratory advisory committee, Dr. Ludvig Hektoen, director of the McCormick Institute for Infectious Diseases; Arthur I. Kendal, Ph.D., dean of Northwestern University Medical School, and Dr. David J. Davis, head of the department of bacteriology of the University of Illinois. On the consulting staff of pediatricians are: Drs. Julius H. Hess, University of Illinois; Clifford G. Grulee, professor of pediatrics, Rush Medical College, and Isaac A. Abt, Northwestern University Medical School. Departmental advisers on prenatal care are: Drs. Joseph B. DeLee, head of the Chicago Lying-in Hospital and professor of obstetrics, Northwestern University Medical School, and Davis S. Hillis, associate of Dr. DeLee. Dr. Louis E. Schmidt, professor of genito-urinary surgery, Northwestern University Medical School, is departmental adviser on venereal disease; Dr. Walter H. O. Hoffman, attending physician of the Children's Memorial Hospital, is lecturer and adviser on infant welfare.

Superstition As Affecting Disease Prevention

By A. LEVINSON, M.D., CHICAGO.

CONTROL of communicable diseases involves many and varied activities on the part of the health department and the closest co-operation between the health department and practising physician. Even when all the essential health machinery is perfect, however, control will fail in the absence of a knowledge on the part of physicians and nurses of the notions that may be current in regard to the communication and treatment of contagious disease. The control of communicable diseases by measures which cut off contact fails in a neighborhood where the opinion is current that everyone must at some time or another inevitably contract some contagious disease. It is by no means uncommon for mothers to expose their children to measles "to get it over with." In one of my patients this practice resulted in death from secondary meningitis, and in two other cases broncho-pneumonia was the result. Six children were affected in the family which disregarded orders for the isolation of the first patient and neighboring children were brought in to share the infection.

Such practices are less marked in scarlet fever, meningitis, and whooping cough yet it is by no means rare to find a mother who deliberately exposes her child to whooping cough in utter disregard of the seriousness of the infection and the physical handicaps that frequently follow in its train.

Curious notions connected with the "no bath" idea often carry potential harm. Many women cling to the notion that in the case of chicken pox the skin should never be wet, the belief probably being carried over from the idea that chicken pox is a wind pox and that, therefore, no wind or water must come in contact with the body. The ill effects of leaving the skin without water for ten or twelve days are apparent. The sick child must be regularly bathed both in the interest of cleanliness and to afford a simple means of reducing high bodily temperature. In order to appease a prejudiced mother or grandmother, however, the nurse may need to refrain from giving the child a tub bath and to use a sponge bath only. A superstition that probably does no harm but certainly does no good is the supposed danger of bathing any child with scarlet fever or measles.

This superstition might, in rare instances, be of some service in view of the fact that if a child is not bathed his heart is not over-taxed and a possible myocarditis may thus be prevented, but even here the "no bath" idea is carried to the extreme of not allowing any water to come in contact with the skin.

The "no light and no air" notion of measles is so prevalent that children are often thereby rendered the more susceptible to pneumonia. It is a common experience to see otherwise intelligent parents confine children to hot rooms during the first few days of measles, no ray of sunlight and no breath of fresh air being allowed to enter the room. Darkening the room during measles assumes that conjunctivitis, one of the cardinal symptoms of the early stages of the disease may be aggravated by exposure to light. On the contrary, light need not be considered injurious. Much worse than excluding light is the danger of excluding air. Fresh air in circulation is necessary for children under all circumstances and it is highly unfortunate that children affected with measles are so often kept in rooms with a temperature of 80 to 85 degrees and are covered with quilts and spreads for additional warmth. Only recently the mother of one of my patients not only excluded the air from the sick room but heated the stove and put an onion poultice on the child's chest, back and front, so as to make sure that the child would be kept warm. The broncho-pneumonia that ensued was a natural result.

Another practice with serious consequences is the treatment of whooping cough by taking the little patient to the gas plant. The disease is supposed to subside when the child is put in an atmosphere of carbon monoxid. It is tragic to know that people in civilized communities will, under any circumstances, carry their children to a gas plant in order to saturate their lungs with carbon monoxid. Rich people even go to the length of introducing coal into the apartment and lighting it so that coal gas will emanate. Many deaths from broncho-pneumonia following whooping cough have resulted from this mistaken coal gas treatment.

It is easy to see how this superstition originated. A child exposed to carbon monoxid is suffocated to a

greater or less degree, the suffocation acting as a sedative for the paroxysm or whoop. It is not commonly understood, however, that suffocation may well produce a lasting and highly dangerous effect.

A less radical but quite an irrational treatment is the lighting of creosote lamps in the patient's room so as to suppress the paroxysm, the fact being overlooked that the sick child is thereby subjected to additional headache and nausea resulting from the treatment.

Another extreme but popular treatment of whooping cough is the method of taking the little patients to the lake. Cold air, though less harmful than coal gas, predisposes patients with whooping cough to pneumonia and it is folly to keep the child near the lake for more than a few minutes at a time. The good effect is possibly due to the temporary suppression of the whoop by the sedative action of the cold air but prolonged exposure does more harm than good.

Another opinion held by some physicians as well as by the laity which needs to be counteracted by educational methods and that is that patients with contagious diseases should be starved or kept on liquid diet. Modern research has amply proved that patients suffering from contagious diseases fare better on semi-solid than on liquid diet. During the recent influenza epidemic many a child developed acidosis because of the starvation diet imposed. It was fortunate that some children were given large quantities of medicine which contained a great deal of syrup, the carbohydrate in the syrup in such cases serving to sustain the child's life. A dietary not exclusively carbohydrate would have been better.

Another more or less common prejudice is expressed by some of the older generation who say that milk produces fever, a conclusion probably reached because febrile patients often vomit milk. It is true that patients with fever tolerate milk less than thick food and, as patients tire of an exclusive milk diet this fact can be utilized in the treatment of contagious diseases as it permits the feeding of patients on a soft instead of a liquid diet.

The eradication of superstition will contribute much toward prevention and cure.

Digest of Sanitary and Hygienic Advance

ARIZA, quoted in the tenth Annual Report of the Medical Department of the United Fruit Company, makes the following interesting clinical observations as the result of 304 cases of alastrim-small-pox studied by him:—

(1) It is milder in children than in adults.

(2) The eruption in many cases is very abundant and confluent, lacking the severe symptoms of confluent variola vera.

(3) Secondary fever is absent in most of the cases, even those of a confluent nature; and, if present, is of a very mild type.

(4) The stage of invasion is absolutely similar to that of variola vera, with high fever, headache, backache and vomiting.

(5) The stage of eruption is quite different from variola vera. I have not been able to observe the different rashes so frequently seen in variola vera before the papular stage.

(6) The papular stage is a protracted one, and it takes a much longer time for the papules to become vesicles; and, in the mild cases, only the apex becomes vesicular. The papule come out in crops, and gradually cover the whole surface of the skin.

(7) The crusts are not so thick as those of variola vera, and when they fall off do not leave any pitting, but a good deal of discoloration.

Scrotal Cancer

Southam and Wilson (*B.M.J.*, 3229, November 18, 1922, p. 971) in a study of 141 cases of epithelioma of the scrotum made by them at the Manchester Royal Infirmary, note that while the disease is one which is generally regarded as occurring chiefly among chimney-sweeps, there was only one member of the industry in the series on which they report. Their cases were divided according to occupation as follows: Mule-spinners, 69; tar and paraffin workers, 22; sweeps, 1; various occupations, 38; not stated, 11; total, 141.

The average age of these patients was fifty-one years. The authors conclude that while epithelioma of the scrotum is rare among the chimney-sweeps in South Lancashire, in that district the disease is most frequently met with in mule-spinners in the cotton mills, chronic irritation resulting from friction and contact with oil being the etiological factor. The piecing of broken threads on the spindle necessitates leaning with the left groin and scrotum against an oil-covered bar. This labor is performed in a warm humid atmosphere and the workers perspire freely. The trousers

are always oil-soaked at the level of the upper thigh and lower abdomen and much itching of the parts is apt to follow. Lack of scrupulous cleanliness seems to be an additional factor. The disease is similar in general features to other forms of cutaneous cancer and is equally malignant.

Hereditary Syphilis

Leredde speaking before the Physicians Society of Paris at its meeting of June 9, 1922 (*Le Prog. méd.*, 27, July 8, 1922, p. 324) on the treatment of hereditary syphilis expressed the thought that most syphilitic infants die because the disease remains unrecognized until it is difficult to cure. He believes that the classical method of mercurial inunctions is barbarous and that the disease should be treated in exactly the same manner as it is in the adult with adequate laboratory control of the results.

Vaccination in Switzerland

In the 1921 report of the Swiss Federal Service of Public Hygiene data are given of 398 cases of small-pox. Of this group 359, or 90.18 per cent were in the non-vaccinated; 16, or 4.03 per cent, in the re-vaccinated and 23, or 5.78 per cent, in those reported as having been successfully vaccinated. Not a single death occurred in the vaccinated group.

Typhoid Fever Carriers

Dittmar in a communication to the Royal Society of Medicine on "Some Outbreaks of Enteric Fever due to Carriers of Infection," (*Proc. Roy. Soc. Med.*, xvi, 1, November, 1922) comments on the difficulties surrounding the administrative treatment of carriers of infection. There is adequate power in the public health laws and regulations of Scotland to deal with a person adjudged to be a carrier of an infectious disease in the same manner as if he actually suffered from the disease itself, but before a person may be deemed a carrier he must be certified as such by a medical officer of health and another registered medical practitioner, such certificate being effective for a period not to exceed three months. Further examinations may be made at any time after the date of the certificate and the carrier may demand to be re-examined during the currency of the certificate on giving the medical officer of health

not less than forty-eight hours notice in writing. Carriers have the right of appeal.

Dittmar is of the opinion that while the liberty of the carrier should be safeguarded, the period of the validity of the certificates is too short in the case of typhoid carriers, who may remain infectious for a period of many years. He therefore recommends that after the expiration of the first certificate the period for re-certification should be yearly. The most important disability of the carrier, most of whom are women, is their inability to earn a living as housekeepers, cooks, and dairy-workers. In the interest of others, typhoid fever carriers must not continue to do work which involves the preparation of food. The author believes that if they must change their means of livelihood in the public interest, the charge of this should fall on the public purse. Each case would have to be judged on its merits and the individual circumstances and possibilities carefully investigated by the health officer and if he could certify after such an investigation that the carrier could not earn a living at another form of occupation, a disability pension should be paid by the state. Of course, such a pension would lapse should subsequent examination prove that the person had ceased to be a carrier.

Immunized Dogs Need No Muzzles

The California State Board of Health is to be congratulated on the "sweet reasonableness" of its amendment to its regulations for the control of rabies. Under the new ruling dogs which have been immunized or vaccinated with anti-rabies virus are exempted from quarantine or muzzling. A numbered tag showing the year issued and giving information that the dog wearing the same has been immunized is issued to the dog owner, who is required to attach it firmly to the dog's collar. The collar must be worn at all times except when the dog is in strict confinement.

Widal Test

A. G. Shera concludes (*B. M. J.*, 3231, December 2, 1922, p. 1077) from a small number of tests "that a positive Widal reaction in the un inoculated subject, even some four or five years after inoculation, is of no diagnostic value whatever in typhoid

fever and is of very doubtful value in paratyphoid fevers unless of very high titer. But this in no way detracts from the value of the reaction in the non-inoculated.

Isolation of *B. Tuberculosis* by the Use of Glycerin

As a means of isolating acid-fast bacilli from contaminated material Twort (*Lancet*, ii, 5180, December 9, 1922, p. 1221) finds glycerin extremely useful; its efficacy infinitely superior to the chemicals which have been used for this purpose. The method consists in placing a large platinum loopful of sputum or other material from which acid-fast bacilli are to be isolated, into tubes containing 1 c.c. of pure glycerin, 75 per cent, 50 per cent, and 25 per cent in normal saline. After twenty-four hours at room temperature these are cultured on 4 per cent glycerin egg medium, or petroff's medium. If contaminations are numerous further cultures are made on the third day. Sometimes all contamination is destroyed in twenty-four hours, usually not. It may be necessary to resort to a third culture after a week.

Specimens in which *B. tuberculosis* have been demonstrated microscopically, if left sufficiently long, have uniformly given pure cultures. The exact percentage of glycerin and temperature best suited for isolation have not yet been determined. It also remains to be shown if it is possible to isolate when the bacilli are very scarce and in highly contaminated material, such as milk or stools.

The Larvacide Developed by Panama Health Department

The chief health officer of the Panama Canal in his annual report for the calendar year 1921 expresses the belief that the Panama Canal "larvacide" developed some years ago by the Health Department of the Panama Canal has won a reputation in the opinions of anti-malaria workers as an effective agent for destroying mosquito larvae. It consists of a crude carbolic acid-resin soap solution which readily emulsifies in water and is a potent destroyer of larvae in highly dilute proportions. It is especially valuable in its quick action on larvae, its ease of application, and because of the fact that it diffuses rapidly and penetrates into small pockets of water or where vegetation and debris are abundant. It is also much used where black oil cannot be applied because of the unsightliness or other damage it causes. When it was first

developed, the cost of making was relatively low, about 14 cents per gallon. The present cost is about 62 cents per gallon.

Of late years the principle use of "larvacide" has been as a diluent for black oil (crude petroleum with an asphalt base) to enable it to flow freely through the piping and nozzles of spray pumps. It was noticed that, although the mixture flowed with ease, when it was applied to the water, the oil failed to spread into a film but remained floating in the form of globules, requiring the application of a large amount to cover thoroughly the water with oil. The "larvacide" diffused and after some hours, or even days, the oil showed a tendency to film. Experiments were undertaken to determine the cause of non-filming and to discover a cheaper more effective diluent. It was soon noted that any soapy substance impaired or practically destroyed the filming tendency of oils and, as larvacide is a resin soap solution of carbolic acid, its deterrent action on filming could not be overcome. Kerosene and other lighter oils were tried but were not satisfactory because of low filming power or excessive cost. Crude petroleum (fuel oil) alone appeared to have the best covering power when applied to water and the solution of the problem seemed to lie solely in devising means of applying the oil economically and effectively. This was done. By heating the oil and spraying while it was hot, a perfect film formed wherever vegetation or debris did not obstruct. In grass-grown shallows when sprayed at a high angle to allow the oily mist to fall vertically a covering of oil was obtained. Less oil is used by this method and it has been found needless to cut grass around the margins of small lakes, since the application of oil by this method has proved satisfactory. A saving of about eight thousand dollars per year will result from the adoption of the hot-oil spray. The chief use of "larvacide" by the Health Department by the Panama Canal is as a fly destroyer and repellent.

Simple Method for Collection of Specimens

A simple method for the collection of specimens for the examination of suspected typhoid carriers is described by Klotz (*J. A. M. A.*, lxxix, 23, Dec. 2, 1922, p. 1931). When a large number of persons are to be examined, procedure is simplified by the use of a large paper container about 6½ inches square and 3½ inches deep,

known as a "hemorrhage cup." These cups are made and sold by some of the manufacturers of burnable sputum cups. Stools are evacuated directly into the paper cups and a small thoroughly mixed portion transferred with a spatula to a tin pill-box which is sent to the laboratory for examination. Such a method prevents contamination of negative samples and prevents serious error in the findings for the group.

Carbon Tetrachlorid

The administration of carbon tetrachlorid to more than twenty thousand persons in the colony of Fiji has been reported by S. M. Lambert (*J. A. M. A.*, lxxix, 25, December 16, 1922, p. 2035). The dose given was 0.2 c.c. (3 minims) from one year of age up to the age of 15, when the adult dose of from 3 to 4 c.c. (from 45 to 60 minims) is reached. The conclusions are that this drug is a vermifuge and vermicide of great potency, giving little discomfort to the patient; and that it permits rapid treatment at a low cost of vast populations suffering from hookworm disease. Reexamination of some eight hundred treated patients indicated that the infection rate of the community was lowered from 100 per cent to less than 9 per cent.

The Preservation of Milk and Foods by the Use of Nitrol

Bart (*Archiv f. Hygiene*, xci, 1922, p. 1) reports tests on the antiseptic and disinfectant powers of N₂O. When applied under pressure of thirty-five atmospheres, this gas proves highly efficient as a sterilizing agent and the author believes that it may have a field in the preservation of milk and other perishable foods. The advantage of such a process as compared with simple heat treatment do not seem obvious.

Atypically Staining Tuberculosis-like Bacilli

European laboratory workers have been much interested of late in the bacterial types described by Much which are not acid-fast but which he and others believe to be strains of tubercle bacilli. Peter (*Beit. z. Klin. der Tuberculose*, lii, 1922, p. 70) presents data to prove that these atypical forms are relatively much more common in early cases than in late cases and in cases with favorable as compared with unfavorable prognosis. He believes the relative proportion of the two forms is determined by the selec-

tive forces operating in the struggle between invader and host. The whole theory seems a trifle fantastic, but the results presented are sufficiently suggestive to warrant repeating the work.

Treatment of Trypanosomiasis

Experiments are being actively carried forward, both in France and in Germany, on the preparation of effective drugs for the destruction of trypanosomes in the body. Navarro Martin and Stefanopaulo (*Annales de l'Institut Pasteur*, xxvi, 1922, p. 619) have obtained promising results with aminophenol-arsenate of soda.

The Tuberculosis Dispensary a World-wide Institution

Sir Robert Philip, President of the Section of Tuberculosis of the British Medical Association (*B. M. J.* 325, October 21, 1922, p. 733) in his introductory remarks at the 1922 annual meeting at Glasgow, made a comparison between present day tuberculosis conditions and those of 1888 when the Association last met in Glasgow. At that time the tuberculosis bacillus had been known for six years yet the first tuberculosis dispensary had just been established and the tuberculosis sanatorium was only beginning to be spoken of. Since that time the bacillus has been the subject of vast scientific investigations; the tuberculosis dispensary has become a world-wide accepted institution; instrumentalities for the recognition and the cure of the disease have been created everywhere; in Great Britain the necessity of linking the various institutions has been officially recognized; tuberculosis schemes have been established by statute; the disease now occupies a place in the group of the infections and notification of all its forms is compulsory. During 1921 in England and Wales, the number of such notifications amounted to 71,702 and in Scotland to 12,524. On June 1st, 1922 the tuberculosis schemes in England and Wales included 381 tuberculosis officers, 441 tuberculosis dispensaries, 84 visiting stations and 20,395 beds in sanatoriums and hospitals, with 2,664 additional beds in preparation. At the same date in Scotland, there were 80 tuberculosis officers, 29 tuberculosis dispensaries and 3,558 beds. The drop in the tuberculosis death rate has been remarkable and reassuring. During the period from 1881 to 1890 the average number of deaths from tuberculosis in England was 66,526, i.e., 242 per 100,000; in 1919 the number

of deaths was 46,310 or 126 per 100,000; in Scotland the corresponding figures are, 1881-90, 10,645 deaths or a rate of 276 per 100,000 and for 1919, 6,326 deaths, a rate of 129 per 100,000.

Results of Anti-Malarial Operations

The results of the anti-malarial operations in the Panama Canal Zone are well shown by the fact that, while in 1881 the malaria death rate was estimated at over 20 per thousand of the population, and in 1906 it was 9.49 per thousand, by 1920 it was reduced to 0.08 per thousand for the Canal Zone and the terminal cities of Panama and Colon. In the employees alone, the rate in 1906 was 7.45 per thousand and in 1921, it was zero.

The Prevalence of Syphilis in Denmark

The frequency with which syphilis may be demonstrated clinically and at necropsy is shown by the data collected by Melchior (*Hospitalstidende May 12, '22*, p. 106 and *B. M. J.* 3210, July 8, '22) in the course of a series of studies of 5,865 bodies examined at the Communal Hospital in Copenhagen from 1914 to 1920. In 4,717 of persons over fifteen years of age, there were 358 or 7.6 per cent with anamnestic, clinical, or post-mortem evidence of syphilis. Of these 69 per cent were males. The effect of the disease on longevity is shown by the fact that 65.4 per cent of the syphilitics died between the ages of thirty and sixty years, whereas only 46 per cent of all patients died between these ages. Only 25.1 per cent of the syphilitics died after the age of sixty and only 7.2 per cent after the age of seventy, while in corresponding age groups in the general body of patients, the percentages were 44 per cent and 22.5 per cent respectively. A definite history of infection was obtained in 54 per cent of the syphilitics and the date of infection in 50 per cent. At necropsy, syphilitic changes were found in 69.3 per cent, the highest percentages being found in the upper age groups.

May Bank Notes Transmit Itch?

The itch for money has long been recognized as a definite entity but itch from money and the possibility of its acting as the disseminating agent of true itch has received scant consid-

eration. The Director of Medical Research for the Gold Coast in the report for the Accra Laboratory for 1920 sets forth the results of the examination of some shilling notes which well deserved the name of "filthy lucre." Ten of the notes, chosen at random, were soaked in sterile salt normal solution in a sterile dish for half an hour, brushed with a sterile brush and removed. The remaining fluid was examined microscopically, tested for *B. coli*, plated on agar and planted on various culture media, centrifuged and the deposit examined microscopically. *B. coli* was not demonstrated. There was no evidence of faecal contamination. As might be expected, vast numbers of bacteria, yeasts and moulds were found. The deposit contained sand and grit, food material, pollens and not a few sarcoptid mites and eggs. The mites were alive and active.

Human Plague Carriers

Wu Lien Teh (*Jour. of Hyg.* xxi, 1, June, 1923, p. 62, et seq) in an epidemiological description of plague in the Orient with special reference to the Manchurian outbreaks, raises some very interesting speculations by his report of human plague carriers. The discovery of the first authentic cases was accidentally made among a collection of contacts. A motor-car driver was admitted to a hospital with eighteen other contacts from an inn in which there had been a plague death and the following day complained of headache. He was found to have a slight elevation of temperature and his sputum, which was apparently normal, contained bacilli suspicious of plague. Cultures and inoculations into guinea pigs demonstrated the bacillus pestis. On the sixth day after admission, the patient, who had remained perfectly well, except for the slight headache and fever just mentioned, was carefully re-examined. Swabs taken from the tonsils were positive for the plague bacillus by both cultural and guinea pig tests. Another case was that of an apparently normal contact whose sputum was also positive. Teh wisely observes that "it is premature to say how far the question of carriers influences the course of a pneumonic plague epidemic." It is his belief that pneumonic plague epidemics arise as a secondary manifestation of bubonic plague and that the prevalence of purely septicemic cases towards the end of the epidemic is significant as a probable explanation of its decline and termination. He states

that rooms where patients have died of pneumonic plague are not particularly dangerous, in four instances recorded, sick patients travelling in railway carriages did not infect their fellow passengers. Alcohol, he believes, is the surest way of sterilizing the hands and gloves in pneumonic plague work, since other disinfectants and antiseptics, even in strengths above those usually employed, have very little effect upon plague sputum. The mask is the principal means of personal protection against pneumonic plague. The problem of successful vaccination against pneumonic plague still awaits solution.

Improved Technic for the Identification of Diphtheria Bacilli

Pergola (*Bol. della R. Acad. di Roma*, 1920-21, *Anal. by L'Igiene Mod.*, xv, 1, Jan. '22, p. 23 and *Bul. Office Internat. d'Hyg. Pub.*, xiv, 5, p. 567, May '22) proposes to substitute for Loeffler's serum and Conradi and

Troch's medium, a new medium of his own composition, containing tellurite of potassium. He uses four preparations, solidified by gelatin, or substances which grow the diphtheria bacillus, or with egg yolk, or with blood serum. Selenite cannot be used in place of tellurite. These media are very selective and give very satisfactory results since they restrain well the growth of other organisms and they permit the very easy identification of the diphtheria colonies by microscopical examination, even though they may not be numerous and scattered among numerous colonies of other species. The four media of Pergola do not present the hindrances of other media, for example that of the difficulty which is often encountered in the process of sterilization. The author gives directions for the economical and ready preparation of the media and points out the necessity of inoculating the plates by striae in order to obtain good isolation of the colonies.

and Miss Foley retained as the directing genius of the association.

Summer Nursing Courses

The department of preventive medicine and public health of the University of Minnesota offers for public health nurses, a six weeks course in maternity and infant hygiene, in cooperation with the division of child hygiene of the State Board of Health, the Visiting Nurse Association of Minneapolis, and the Infant Welfare Society of Minneapolis. The summer session is from June 26 to August 3, 1923.

The course consists of the following subjects: principles of public health nursing, maternity and child hygiene and supervised field practice in maternity and infant welfare.

In addition to these courses, opportunity is given to elect other subjects offered by other departments during the regular summer session of the university. Those interested in these courses should send to the Registrar, University of Minnesota, for a bulletin of the summer session.

The courses in maternity and infant hygiene are open to all public health nurses who are considered qualified to pursue this type of work to advantage, but college credit will only be given when college entrance requirements have been fulfilled.

Reduction in Health Appropriations

An unfortunate tendency to carry municipal economy into public health is shown in the reduced health department appropriations in Cincinnati. The appropriation of \$135,000 is twenty thousand dollars less than the authorization for this year. The per capita cost for health conservation last year was 40 cents. The per capita cost this year is 33 cents, the lowest of all cities in its class. This reduction has compelled the sacrifice of eleven full-time and ten part-time employees, and the suspension of publication of the *Sanitary Bulletin*. Such action seems particularly regrettable in view of the conservative estimate of the Committee on Municipal Health Department Practice of the American Public Health Association that an appropriation of about \$1.12 per capita is essential for the discharge of the fundamental responsibilities of the municipal health department, even excluding all money spent for public health nursing and the maintenance of contagious disease hospitals.

Chicago Visiting Nurses

THE Chicago Visiting Nurse Association on the occasion of its thirty-third annual conference presented a case for nursing needs and humanitarian values in nursing service that merits the consideration of health bodies everywhere. Organized in 1899 with only one nurse, its personnel increased to four the first year. The present staff numbers 107, and the supplementary services, created as the need developed, chronologically represent a fair index to the development of public health nursing. The first industrial section was created in 1903. The Chicago Milk Commission, formed in 1909, split off to form the Infant Welfare Association which has done such comprehensive work; and the highly specialized service of the division that has to do with reclaiming those afflicted with infantile paralysis has done path-finding work among crippled children.

Public approval kept pace with the broad vision of the directors of the association and the first endowment, received in 1899, has by a process of accretion grown to the significant total of \$851,000, a sum not commensurate with the nursing needs of an urban community like Chicago, but sufficient to stabilize the work and subject to gradual increase. The stability of the organization is further attested by the small change in per-

sonnel. Of the total of 155 persons who have served on the directorate, 113 are still active. Medals for five to thirty-three years of service were on this occasion awarded to something less than fifty nurses and members.

The address of the director, Miss Edna L. Foley, brought out the increase of effectiveness through affiliation with other social agencies, for it is not with skilful hands alone that the nurse serves, but by her knowledge and command of social resources. It is the exceptional home that does not require some means to supplement the service the nurse can give. Reputation is not built over night. Public confidence comes as the result of long and efficient service rendered. That miracles of healing do take place in the most inconceivable surroundings serves to preserve to the nurse her courage, and to the visiting nursing group the vision which must guide their future work. The touchstone of it all is not in the ornamental figures of statistical reports of visits made and "cases" seen, but in remembering that each "case" is a suffering individual. So will preventable ignorance, sickness, and poverty be eliminated. "Before we can socialize the individual," said Miss Foley, "we must individualize society."

Mrs. J. M. Cudahy was re-elected president of the board of directors,

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Tell It to the People

THE great bulk of medical work, public and private," said Richard Cabot, thirteen years ago, "is still done by men—high-minded men—who believe that it is impossible to deal frankly and openly with patients." It is probable that this was even then an overstatement of the case; yet there has certainly been a marked and a gratifying tendency during recent years for the medical profession to take the public more and more fully into its confidence. The promise for next month of the first issue of a new monthly journal, *Hygeia*, to be published by the American Medical Association, is the latest manifestation of the new spirit in medicine.

Hygeia is "to interpret medical science to the public; to inform the layman concerning the fundamental facts of physiology and pathology; to keep him in touch with the advance that scientific medicine is making in the prevention and alleviation of disease." The demand for popular journals in this field has already been demonstrated, but it is profoundly significant that the medical profession of the country should go to the length of establishing a special journal for the enlightenment of the public. It is perhaps even more interesting that the primary emphasis of

the new periodical, as evidenced by its name, should be on prevention. *Hygeia*, it will be recalled, was the daughter of Aesculapius. Therapeutics attained maturity first, but the future belongs to prophylaxis. In so far as the individual physician and the profession as a whole become teachers of hygiene, will their greatest possibilities be realized.

Problems of Sanatorium Treatment

IT HAS been generally admitted by the leading members of the medical profession, and in particular by the tuberculosis experts themselves, that sanatorium treatment falls far short of the results hoped for twenty years ago. It had been thought that six months treatment would completely cure nearly all patients who were received in the incipient stage. The few sanatoriums that have followed up their discharged cases find that after five, ten, or fifteen years from 25 to 75 per cent of the patients are well and of those that have died practically all have died of tuberculosis. Many sanatorium physicians now urge a much longer period for a complete cure. Social workers, dispensary physicians, and private physicians in our larger cities complain of the fact that many patients return from sanatoriums apparently fit

for work, but relapse within a few months after their return and then find great difficulty in securing readmission to the same sanatorium or admission to another sanatorium as the condition is considered too far advanced.

Are the sanatoriums performing their full duty in this situation? Is it feasible for them to train their patients to perform work, light at first, but gradually increasing in amount, so that the patient will not be discharged until he is in fit condition to carry on his occupation? We know that this ideal is difficult to attain and that many patients desire to return home as soon as they feel well enough to be up and about; but surely the boards of managers and trustees of sanatoriums should take all possible steps to increase the length of stay for those patients who show a prospect of complete return to health and working capacity.

Many persons are recommending farm colonies and work shops for after-care. The question is raised as to whether or not it is feasible to perform this after-care and preparation for future work at the sanatorium. The Director of the Veterans' Bureau has announced that he is organizing some so-called "Convalescent Centers," to which men will be sent for prolonged convalescence and vocational training after the disease has been arrested by sanatorium treatment. The consultants on hospitalization to the Secretary of the Treasury have also provided generous space for pre-vocational training in the several sanatoriums which are being built by the government upon the consultants' recommendations.

The two greatest gaps in our present machinery for the care and prevention of tuberculosis are, (1) the detection of the early case and immediate provision for its treatment, and (2) the care of the patient discharged from the sanatorium, supposedly arrested or apparently cured. It is hoped that sanatorium authorities will carefully consider what future steps can be taken to provide at the sanatoriums the "work cure" which should follow the "rest cure."

The Wider Program of Anti-Tuberculosis Work

IN THE beginning of our anti-tuberculosis campaigns in the larger centers of population, emphasis was placed upon facilities for laboratory diagnosis; anti-spitting laws; the care of early cases in sanatoriums and the isolation and care of advanced cases. These measures have been continued with apparent success. The next steps were the organization of case finding machinery by the creation of tuberculosis classes in general clinics, the establishment of tuberculosis dis-

pensaries, and the employment of public health nurses. As time went on, general popular education by means of the tract, newspaper, lantern slides, and, more latterly, the film, has had the greatest value in awakening a widespread interest in combating this disease.

The leaders of medical thought have looked further into the problem and have seen that prevention should begin before adult life and endeavors should have been made by various methods to ascertain by means of physical examination the minor physical defects which exist among children of school age and to provide facilities for the removal of these defects. After, and in many cases before, this machinery had been organized, endeavors were made to give popular education on health, to instill in the minds of children the importance of healthful habits, and to furnish them with a means of acquiring these healthful habits.

It has not as yet been generally realized that a tuberculosis program cannot be complete without a well rounded out comprehensive public health program, which would include as a primary duty the creation and maintenance of a first class state and local health administration. To appreciate what the tuberculosis problem is, one must have an accurate knowledge of vital statistics with records of mortality and morbidity from various diseases; and in many states and localities this information is still lacking. To prevent tuberculosis one must prevent other forms of communicable diseases. Children must be well nourished, they must receive their regular allowance of fresh air, pure food and pure water, and these can be obtained only by means of the constant supervision of the health department. Further, the social and economic conditions of our modern life play an extremely important part in the tuberculosis program. Adequate housing facilities are essential and these should be sanitary and decent and such as not to permit of overcrowding. This can only be obtained by means of housing laws and supervision. Hours of work must be regulated; work in factory and shop must be controlled; proper safety appliances must be utilized to prevent the inhalation of noxious gases and harmful dusts. At the present time it should be a primary objective in the minds of all health workers, who are endeavoring to combat tuberculosis and other diseases, to secure the creation and maintenance of a satisfactory health department, both state and local, and a health department be cognizant of the fundamental principles of anti-tuberculosis work.

These fundamental principles can be summarized briefly under several headings. There

should be adequate case finding machinery which should include an enlightened public opinion as to the need of early and competent medical examination. This necessarily emphasizes the importance of having thoroughly trained and competent medical practitioners. For those who cannot afford the well trained private diagnostician, recourse must be had to the public dispensary. Visiting nurses, public health nurses and social welfare agencies will also materially assist in detecting early cases of tuberculosis. Public health laboratories are essential for diagnosis. When the case has been detected, facilities must be available for treatment in sanatoriums and other special institutions. Facilities must also be provided for the advanced case and also in occasional instances authority must be granted to health departments to enforce isolation for the careless consumptive. Finally, official and voluntary agencies must do all in their power to maintain a high standard of work in all the intricate branches of health work. With the constant development of the industrial and agricultural resources of the country, a higher standard of living may be obtained so that it may be possible for each individual family to earn a sufficient sum of money to live on such a plane that the danger of tuberculosis will be reduced to a minimum.

The Need of More Milk for Our Cities

EVER since the newer knowledge of nutrition made clear the preeminent importance of milk in our food supply, those physicians and health officers who appreciate the influence of nutrition upon the ability to resist disease have felt that more attention should be given to the problem of providing our urban population with a milk supply not only of satisfactory quality, but also of adequate amount. This feeling is intensified as we look over the statistics of city milk supply recently collected by the Committee on Municipal Health Department Practice of the American Public Health Association.

The advice of experts in nutrition as to the per capita consumption of milk needed to give the best results ranges from one pint to one quart per day. Not a single city reports a milk supply equal to the higher of these estimates, and even the lowest standard is apparently reached by only one city in ten. The average for the sixty-six cities reporting is 0.34 quart per capita per day and all of the five largest cities show per capita milk supplies very close to this average. Some might argue that this experience shows one-third of a quart of milk per capita per day to be an adequate community supply; but this view would

only be justified if it were true that all the people of these cities were well nourished or if we accept as "adequate" a condition which is far from being satisfactory. As was shown in our issue of last September¹ a food supply may be adequate not only for healthy maintenance but for growth and reproduction, generation after generation, and yet an increase in the proportion of milk in such a food supply will strikingly improve the health and vigor of the families subsisting upon it. It must also be remembered that the total milk supply of a city is not evenly distributed to all its families according to their needs, hence the supply should be large enough to provide a safe margin in this respect. According to a widely accepted dietary rule *every* family food supply should furnish a quart of milk per day for every child up to six years of age, at least a pint for every child from six to sixteen, and at least a half-pint for every adult. This is a *minimum* standard. Recent work shows² that optimum storage of calcium in the body of the growing child, and presumably therefore optimum development of bones and teeth, requires that the allowance of a quart of milk per day be maintained up to at least the age of twelve to fourteen years.

When we view the data of our city milk supplies in the light of this newer knowledge of what a really satisfactory per capita consumption of milk would be, it is plain that Clark and Collins of the United States Public Health Service are very conservative when they say that "probably the most important nutrition problem is to secure an abundant and safe milk supply at reasonable cost." We believe that, broadly speaking, American city milk supplies are now reasonably safe but are far from being reasonably abundant. The country is abundantly able to supply as much milk as is demanded; but the cities do not consume anywhere near as much as would yield the best returns in health and vigor. Naturally, the condition is worse in the southern than in the northern cities. For example, Boston shows a per capita consumption of 0.51 quart, Minneapolis 0.42, Denver 0.47, Pittsburgh 0.60, against Birmingham 0.13, Atlanta 0.14, Richmond 0.17, Memphis 0.15. Jacksonville, the home of a man who for some years has been a member of the National Commission on Milk Standards and a woman who has been one of the most efficient workers in the popular teaching of nutrition, makes a much better showing than other southern cities. The difficulties of materially increas-

1. Sherman, H. C., *The Nation's Health*, iv, No. 9, p. 513 (1922).
2. Sherman, H. C., and Hawley, E., *Journal of Biological Chemistry* lili, 375, August, 1922, and *Journal of Home Economics*, xiv, 413, September, 1922.

ing the consumption and supply of milk in our cities are not insuperable, even in the South. The fluid milk industry is capable of considerable expansion to meet a growing market; and in addition to this there is the great potential resource of milk produced wherever economy indicates and preserved by any of the modern methods of drying or canning for use whenever or wherever needed.

The experience of the United States Public Health Service in the use of dried milk for infant feeding, recently published in full by Clark and Collins,³ has been gratifying in the highest degree. It was already well known through other publications of the Public Health Service that the war city of Nitro, W. Va., derived its milk supply entirely from dry milk and with very satisfactory results. The National Commission on Milk Standards has taken favorable note of the dry milk industry and has urged upon health officers a liberal attitude toward this new product such as shall encourage and not hamper its increased production and use. The Committee on Nutritional Problems of the American Public Health Association has done likewise, and has emphasized its belief that the production of dry milk is destined to play an important part in the food supply of the South where shortage of natural ice makes the handling of fluid milk especially troublesome and expensive. The manifest advantages of dry milk apply in greater or less degree to canned milk also, and as yet canning appears still to be somewhat the more economical process. Such at any rate is the most probable explanation of the fact that condensed and evaporated milks are still far larger factors in the milk supply than dried milk has yet become, notwithstanding the cordial reception accorded to dried milk and the fact that canned milk has always had to contend against a greater or less degree of prejudice. Any prejudice which tends to retard the use of either dried or canned milk is unfortunate and is opposed to the interests of the public health. A good grade of either canned or dried milk is good milk in concentrated form, and condensed milk like milk powder may be used interchangeably with fluid milk⁴ whenever circumstances make this desirable. Consideration of vitamin C need not enter to complicate this question if we accept the judgment of the Committee on Nutritional Problems of the American Public Health Association⁵ that *all* artificially fed infants should be given a small

amount of some such highly efficient antiscorbutic as the juice of orange or of canned tomato.

To return to our text, we earnestly recommend that the Committee on Municipal Health Department Practice repeat its inquiry as to the per capita consumption of milk in American cities at annual, biennial, or triennial intervals until a very material improvement shall have been effected. It may perhaps be found that the present situation is not quite so bad as it appears. Some cities may have failed to report the milk which they receive in canned or dried form and some health officers may not yet know accurately even the amount of fluid milk which their cities consume. But no health officer can any longer afford to remain ignorant on a point so important to the public health, nor to rest on his efforts to insure a safe milk supply so long as there is even greater need that he cooperate with the Red Cross and home economics workers in their efforts to educate the public to the importance of milk as food, and to a realization of the fact that the best interests of the public health call for the consumption of about twice as much milk, in some form, as our cities are now using according to the latest reports from their health departments.

Height, Weight and Malnutrition— The Complexity of the Problem

THE past year has been an active one in the study of malnutrition and its detection by the determination of height-weight-ratios. There is a growing recognition of the complexity of the problem and of the importance of fixing norms for particular groups of children before drawing deductions as to undernourishment from a given series of weighings. The report of a Committee on Statistics of the New York Nutrition Council¹ contains particularly valuable hints as to the disturbing influences of race and season, and the distinction between retardation and malnutrition.

The gradual perfection of our standards must be brought about by the actual determination of height-weight-ratios in groups of children of various types. For example, Clark, Sydenstricker, and Collins² have presented us with measurements of 14,335 native white school children in four southern states, which indicate results corresponding rather closely with the norms obtained by Baldwin³ from successive observations made year by year on 250 children in New York City.

3. Clark, T., and Collins, S. D. Public Health Reports, xxxvii, pp. 2415-2433, October 6, 1922.

4. Mudge and Rich: The Nation's Health, iv, p. 509 (August 1922).

5. American Journal of Public Health, February, 1922.

1. Height and Weight as an Index of Nutrition. Issued by the N. Y. A. I. C. P., May, 1922.

2. Height and Weight of School Children. Public Health Reports, May 19, 1922, p. 1185.

3. Physical Growth of Children from Birth to Maturity. University of Iowa Studies in Child Welfare, 1921.

although the weight-height index obtained by the Public Health Service for girls rises in later years above that found by Baldwin.

In view of the general interest in Pirquet's pelidisi system⁴ the study conducted on 1,814 children in New York by Baker and Blumenthal⁵ is particularly significant. A 10 per cent deviation from the Wood scale of height-weight corresponded in this case rather closely to the results of clinical examination (22 per cent as compared with 25 per cent of the children undernourished) but the Pirquet pelidisi standard gave a much higher figure (33 per cent).

For the pre-school child we have, of course, the admirably exhaustive studies of Woodbury⁶; and for children over school age, the report of Frankel and Dublin⁷.

Imperfections there must always be in any plan of relating height and weight to malnutrition. These imperfections will surely decrease, however, as our knowledge grows. Meanwhile, "The scale in every school" has proved its value. In the words of Dr. Holt⁸, the most influential proponent of this movement, "the purpose of weighing and measuring children is not to collect statistics, but to interest the children themselves in health, and this it is bound to do."

The Veterinarian and the Public Health

THE debt which sanitary science owes to veterinary medicine and the advantages which will accrue to the public health through closer affiliation between those who are interested in the preservation of the health of man and those who labor with animals, are too little recognized. Not only is the trained veterinarian assisting in the solution of many problems of human pathology through research into the diseases of animals, but he may also be of incalculable value in preventing the spread of the communicable diseases of animals to man. By collaboration and an interchange of thought, the medical and the veterinary professions will receive much mutual benefit, while for the health worker, the veterinarian will prove an ally of the greatest worth. As a matter of fact, the eradication of several diseases common to man and animals, rests in the final analysis with the veterinary scientist.

Glanders, through the discovery and application of mallein, has become extinct in Great Britain; human rabies will disappear if the veterinarian will control his canine patients, while he may render great aid in the eradication of anthrax, foot and mouth disease, and cowpox. It has been stated that each year more than ten thousand British children die from drinking the milk of tuberculous cattle, of which it is estimated there are a million in England and Wales. The control of mange, ring-worms, actinomycosis, echinococcosis, trichinosis, the beef and pork tape-worms also fall within the purview of both animal and human public health, since they are inter-transmissible and there is also a broad common ground in the prophylaxis of the virus diseases in which there would be the fullest cooperation between veterinarians and sanitarians.

The time has come when the health worker who does not avail himself to the fullest extent of the assistance of his veterinary colleague is neglecting an opportunity of great potentialities, not only because of the intercommunicability of many animal and human diseases but also because by the study of the analogies between the pathological processes of man and those of the lower orders much knowledge may be gained which can be employed in the protection of the human species.

Public health is not a science standing in isolated grandeur. Rather is it a cooperating and coordinating focus at which meet all of those sciences which may assist in surrounding man with every safeguard which will protect and prolong his life.

THE function of public health nursing and the place of the nursing department in the municipal health organization are ably discussed on another page of this issue of THE NATION'S HEALTH by Dr. Charles J. Hastings, medical officer of health, Toronto. No division which forms an essential part of public health service presents greater possibilities or greater complexities than that of nursing. What municipal responsibility attaches to school health supervision; what bedside nursing shall be undertaken; what use in giving direction to general activities can be made of the first hand contacts of the nurse; what team play can be effected between the city nurse and other community resources; what means of constant intercommunication will assure unity of organization: all of these problems have been met in the flexible and efficient system evolved in Toronto. We commend it to the consideration of health officers and nursing organizations everywhere.

4. An Outline of the Pirquet System of Nutrition, Dr. Clemens Pirquet, W. B. Saunders Company, 1922.

5. Comparison of Methods of Malnutrition in School Children, based upon the Pelidisi Method, the Wood Height and Weight Scale and Physical Examinations recorded by the Dunfermline Scale. The Nation's Health, January, 1922.

6. Statures and Weights of Children under Six Years of Age. Children's Bureau Publication, No. 87, Washington, 1921.

7. Heights and Weights of New York City Children, 14 to 16 Years of Age, Metropolitan Life Insurance Co., N. Y., 1916.

8. Child Weighing Not a Fad. The Outlook, June 7, 1922.

HEALTH IN INDUSTRY

*Problems Concerning Factory Sanitation,
Industrial Medicine, and the Health and
Efficiency of the Industrial Worker*

Cost Measurements of Industrial Accident*

BY JOHN L. TRAIN, SECRETARY AND GENERAL MANAGER, UTICA MUTUAL LIFE INSURANCE COMPANY, UTICA, N. Y.

IT HAS been well stated in the report on "Waste in Industry," published in 1921 by the Federated American Engineering Societies that three aspects are to be considered in estimating the economic loss or cost of industrial accidents: (1) The loss of productive labor on the part of workmen who are killed or injured, together with the cost of medical and surgical attention and the overhead cost in connection with the payment of claims. (2) The indirect loss to production due to the stoppage or slowing up of work when an accident occurs. (3) The injurious effect of frequent accidents on the morale of workers.

As a result of the various investigations and studies of statisticians and actuaries, it is possible to ascertain within a reasonable degree of accuracy and fairness, the loss of productive labor caused by accidents.

Taking the United States as a whole, there are approximately three million accidents per year, causing at least one day's disability. This figure will vary somewhat, depending upon decreased or increased industrial activity, but in a normal year with normal industry, this figure, based on the results of investigations in states which keep a complete record of industrial accidents, is approximately correct.

In 1917 a committee on statistics and compensation insurance cost appointed by the International Association of Industrial Accident Boards and Commissions, which committee consisted of many of the leading stat-

isticians and actuaries in the United States, made a report after a thorough investigation to the effect that the time lost was the most significant, stable and convenient expression of the economic cost of industrial accidents and stated that obviously it is only the loss of time due to accidents that is susceptible of satisfactory measurement. It is certainly true that the physical or physiological results cannot be reduced to tangible terms, and the cost in terms of human suffering can neither be estimated or expressed in cold figures.

The report of this committee further states that the economic cost of accidents cannot be measured in terms of the compensation paid, for no two of the American Acts agree as to the scale of benefits to be paid for specific injuries. The compensation cost of industries of equal hazard fluctuates enormously from state to state, and the greatest difference between the compensation paid and the economic loss is found in the relative importance of permanent disabilities.

The Index of Hazard

Further, wage loss, even if it could be accurately obtained, is not a satisfactory index of occupational hazard. Wages vary from occupation to occupation and from time to time, so that no constant relation can be predicated between extent of disability on the one hand and wage loss upon the other. The computation of wage loss, moreover, presents numerous difficulties, more especially in fatal and permanent injuries. It is not a correct assumption to state that the particular wage rates prevailing at the time of

injury will continue throughout the working life of the injured and it is still more difficult to compute the earnings of an apprentice or a minor who is just learning a trade.

The committee therefore adopted a table as a scale of time loss for weighing industrial accidents, applying a certain definite number of days lost to each class of disability. For example, for death and permanent total disability the economic loss was measured by six thousand days and for the injuries of a lesser degree a proportionate time expressed in days lost.

In 1919 an American Accident Table was prepared for the purpose of calculating the value of amendments to the various state workmen's compensation laws so that such calculation should be based upon the last available accident distribution. This table of 100,000 cases shows the distribution of accidents by classes of injuries. That is, out of 100,000 accidents there were 762 fatal cases, 62 permanent total, 3,788 permanent partial and 95,388 temporary total cases. The duration of the temporary total disability cases was again divided as to the actual length of disability.

We, therefore, have available a scientific method of computing economic loss, inasmuch as we know approximately the number of accidents occurring in the United States per year, the classification of such accidents by kind and duration of injury and the cost of such injuries expressed in the number of days lost.

We find, therefore, by this computation and with an average daily wage of four dollars, taking the current figures of the New York State Department of Labor as a fair average,

*Read before the Sixth Annual Industrial Conference of the State of New York, Buffalo, November 23, 1922.

that the economic loss of productive labor per year approaches the vast sum of \$1,010,500,000.

Taking the state of New York by itself, we find that for the year ending June 30, 1921, there were 294,469 accidents. Computing the cost of these accidents on the basis of the American Accident Table and the table adopted by the International Association of Industrial Accident Boards and Commissions for time loss, the total number of days lost would amount to 28,925,592 at a cost of four dollars per working day or \$99,172,000.

It is interesting in this connection to ascertain what proportion of this economic loss is made up by the benefits provided under the New York State Workmen's Compensation Law considering the amount directly received by the injured employee and his dependents and paid physicians and hospitals for medical treatment.

Loss Approximated

Our investigation discloses that the total amount of incurred workmen's compensation losses for the year ending June 30, 1921 of all insurance carriers and self insurers amounted to \$24,136,000 and the medical cost, including hospital \$5,007,000, or a total of \$29,143,000. This, of course, does not include any overhead cost of disbursing the benefits or for any investigation or adjustment of the claims made under the law and, further, it does not consider any outside benefits which the worker or his dependents may receive as a result of personal accident insurance. It would therefore seem that the employee receives direct benefits under the New York Workmen's Compensation Law of approximately 30 per cent of the economic loss. The proportion in New York is greater than in any other state in the United States due to the more liberal provisions of the Act. A fair average of the compensation benefits to the economic loss in the other states in the United States, having workmen's compensation laws, would amount to approximately 20 per cent.

Of course, as far as New York state is concerned it is possible that the application of the American Accident Table to divide the number of accidents by classes of disability is not strictly accurate, but the State Industrial Commission has not yet issued any figures with a complete tabulation of the injuries by classes of disability. It is, therefore, quite possible that the classification of injuries in New York, owing to the gen-

eral average non-hazardous class of business, that is including no coal mining and very little other mining, explosive manufacturing, etc., that the actual economic loss is less than shown by the foregoing computation. It is certainly not more.

It is, of course, impossible to measure by any statistical figures the indirect loss to production due to the stoppage or slowing up of work when an accident occurs but it is known by every employer that such an accident effects production in his plant very seriously. The employee loses confidence in his own safety, his nerves are affected and, while he may thus be rendered more cautious, he carries the point to such an extreme that for some time after the accident, there is a slowing down of his own productive capacity.

It is equally impossible to measure in any concrete terms of cost the pain and suffering to the injured employee and the readjustment of the lives of those dependent upon him.

The country as a whole—industry particularly—is confronted with an annual economic loss due to accidents aggregating \$1,010,500,000. That is a fair estimate, possibly more rather than less is involved, due to additional costs which have not been considered such as stoppage or loss in production, and the training of new workers to replace injured workers.

Humanitarian Cost Great

The economic loss in the state of New York alone may fairly be considered to amount to approximately one hundred million dollars, a loss that is subject to scientific measurement and probably has not been appreciated before by employers or business men. The employee or his dependents are paid but a comparatively small proportion of the actual loss to them and they have a right therefore to ask that the injuries and disabilities causing their economic loss be decreased to the greatest extent possible. This is not to say that the economic loss is caused directly by the employer or that the employees are not in part to blame, but whatever the manner of dividing and apportioning this loss between employer and employee, it actually exists as a waste in industry in the loss of man power and human resources which, above all things, should be conserved.

While we have for the purpose of this paper tried to measure the economic cost of accidents in the terms of figures, the humanitarian side, that is physical pain, the mental

anguish, the suffering and distress both to the injured employee, his family or dependents are of much greater importance and the cost of accidents from this viewpoint alone is so enormous that no employer can offer greater service to his fellow-men than to do everything within his power to eliminate the cause.

Sanitary Safeguards in Travel In U. S. and England

Much is heard from time to time in public health circles in regard to certain laxities and needed emphases in the health protection of the general public. Several accounts of the sanitary practices in this country imposed upon common carriers have been published in recent months in *Public Health Reports* and in *The Nation's Health*. Without in any way seeking to minimize the importance of increasing effort to standardize safe methods throughout the country, the following comment from the current issue of *The Lancet* (London) furnishes an interesting basis for an estimate of the progress made in the United States in this respect:

The amalgamation (recently accomplished) of an immense number of competing railroad managements into a few well distributed groups has given rise to new prospects of efficiency. For ourselves we entertain the hope that travel may not only be rendered hygienic, but may increasingly become an object lesson in the essentials of health to the traveling public. At the present time the sanitary conveniences of the large railway stations in London and the great cities, although they lack the charm of, say, Aberdeen or Basle, are nevertheless clean and efficient; but the water closets and urinals of most suburban and rural stations are unclean and inefficient—in many cases stronger terms would be appropriate—while the facilities for women are penurious. Waiting rooms, if not warmed, should at least be clean, and we may hope that a time will come when it will be possible for any adult traveler to wash his hands at a railway station and for any child to obtain a drink of clean water.

Much, of course, depends on the cooperation of the traveling public, but railways have already done a great deal to discourage the ugly habit of expectoration; traveling manners are improving and the companies should maintain their lead. Our Roumanian correspondent tells us that the sanitary board of the state railways is setting up certain standards regarding ventilation and cleanliness in consultation with members of the medical profession. Perhaps the Royal Sanitary Institute of Public Health could initiate some rivalry among the railway directors in these matters, for undoubtedly hygienic travel might be made a valuable object lesson.

How Industrial Accidents Are Being Prevented*

BY ARTHUR H. YOUNG, MANAGER, INDUSTRIAL RELATIONS, INTERNATIONAL HARVESTER COMPANY, CHICAGO, ILL.

THE Eleventh Annual Congress of the National Safety Council was held in Detroit early in September, 1922. Some two thousand delegates were registered, representing every state in the Union, every province of the Dominion, as well as many foreign countries. Each delegate not only participated in the formal discussion of broad and fundamental factors of accident prevention, but it is safe to say that each, in addition, had at least one wholly original "stunt" or personal experience to contribute to the general program or to private conversation. The report of this convention, when published in the proceedings, will constitute a volume of fifteen hundred pages. Even this vast volume enables only a partial answer to the topics assigned for this discussion.

This mention is made not gratuitously to advertise the National Safety Council, but merely to indicate the scope of the subject, and the impossibility of presenting in one article more than broad general outlines of the present scope and activities in industrial accident prevention.

As a broad, social movement, "safety first" is less than two decades old. All of us have seen its birth, its period of adolescence, and possibly some evidences of maturity, but only the rashest of persons would hazard a prophecy as to what safety shall encompass ten years hence.

In these first pioneer days, the answer to "How are industrial accidents being prevented?" would have involved a mere recital of mechanical safeguards: "Gear covers; countersunk set screws; safety couplings for shafts; hand-rails and toe boards for scaffolding; walks on crane runways, bridges and trolleys; goggles; guards on flywheels, belts, pulleys and shafting. These at first were the paving blocks on the royal road to an accidentless industrial system.

But work on such a basis had no more than started when it was held as inadequate to bear the traffic of a necessary and comprehensive program as would be the roadways of a decade ago to carry the motor truck fleets of today.

There came the quick realization that safety was not primarily a problem of physical equipment, but rather

Safety first tends to supplement haphazard procedure by thought-out reactions. Its logical development is that engineering standards have grown out of well considered accident prevention.

It was inevitable also that any serious attempt to understand the "personal equation" in accident causation would lead to the recognition of types of workers and put a premium upon training and stability which in turn improves industrial relations.

On the physiological side the equivalents of energy required on a given job are becoming known and the hygienic or psychic influences affecting the worker adversely are being controlled by progressive management.

one of education; that, while it could be held necessary and important for equipment to be fool-proof, there could be no prospect of success until every employee, and indeed every member of society, was converted from "a naturally careless to habitually careful person."

And then began the campaign of education—by safety committee meetings; bulletin boards; prize contests; movies; home, school, and public meetings which has developed, through an evolution that in many instances reads like a romance, into (but not culminated in) our present day program, a meager outline of which would include—

Guarding Physical Equipment

"As it was in the beginning is now and ever shall be." This mental attitude represents the starting point of industrial safety. The initial manufacture of standardize codes and the including of all safeguards as an integral part of the machine by its builders were relatively easy to achieve. As one indication of the refinement to which this factor has progressed the electric overhead traveling cranes is of interest. A few years ago it consisted barely of a trolley carried by two steel bridge girders, and mounted on runways that provided no real clearance between

the ends of the bridge and the building columns. Somewhere there was suspended or affixed an operator's cage and the assembly constituted one of the most deadly agencies of modern industry. The operator "shinned up" a lattice column, crawled to his perilous cage, guessed at signals as his knowledge of the idiosyncrasies of signallers best permitted, and moved his load (sometimes safely) through and over groups of workmen dimly discernible beneath him. Dismembered, crushed, and dead bodies of painters, riggers, and repair men marked the passage of the crane on its runway. Repairs or adjustments to the bridge equipment were accomplished on swinging scaffolds and furnished evidence of the descent of man from the ape by the manner in which the repair men clung to the bridge while working over the heads of their fellows below.

The crane of today is purchased from designs and specifications prepared by the safety engineer, has bridge walks with hand rails and toe board across its full length, the trolley is floored and railed, the runway is bracketed out from the building columns to provide not only for man clearance but a floored and railed walkway. The commodious cage has all of its equipment safely housed and insulated. Its design and suspended lights must provide clear view of the floor below. Access to the cage and to the bridge walks from the cage is by means of railed stairways; locked safety switches insure the safety of repair men against careless starting of the machine. Standard signals definitely indicate its movements, warning gongs and crane hooks clear the path before the load; fenders guard the bridge truck wheels, while specially posted guards protect transient workmen on the runways. The trolley wires and all other charged parts are protected from accidental contact. Limit switches make it impossible to "run the blocks." Cables are regularly inspected. Sheaves and blocks are so designed that they or their load cannot drop in the event of breakage. Bumpers and dynamic brakes soften the shock of collision. Roof trusses no longer whisk repair men into eternity. As with emery wheels, goggles, power plants, switch boards, blast furnaces, and machine tools of every description—the physical equipment of the modern plant is becoming as

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nearly fool-proof as human ingenuity and zeal can make them. Cost in most cases is a matter of secondary consideration.

Plant Organization

Safety first is increasingly becoming, as our astute engineers have directed, an integral part of the manufacturing curriculum, rather than a separate and distinct specialty, and we see today our corporate officers, major plant executives, engineers, draftsmen, foremen, and workmen intimately concerning themselves with the "Always Be Careful," the so aptly termed "A, B, C" of safety.

The recent congress of the National Safety Council was not unique in the representation of directors, presidents, officials, and workmen within single session programs. That is an established routine in the safety schools and instruction courses conducted in more than fifty cities in the United States and Canada.

No plant is well organized today that does not include as fundamentally important and necessary to efficient manufacturing, the enlistment of each and every individual concerned therewith actively into the everlasting campaign for the elimination of accidents.

Statistical Record

Federal, state and civic agencies; insurance, organized labor, and engineering societies; community safety councils and industrial safety engineers have so standardized their methods of recording data that we have today a complete historical record of accomplishments in accident prevention work. More important still, we can analyze accurately both physical and mental hazards for the intelligent direction of our efforts. It may safely be said that the forces of "King Carelessness" are completely unmasked—their strength, their direction of attack, mobility, reinforcement possibilities and means of sustenance are fully known through the wealth of statistical data which are at the command of any interested person. Hours could be spent in recital of the good work of the United States Bureau of Labor Statistics, the life and casualty insurance bureaus, the National Safety Council, and committees of safety workers in securing dependable primary data and laborious analyses thereof. Such work is not spectacular and seldom is fair acknowledgment made to those who serve in such capacity of the fundamental value of their work.

A comprehensive program for safe-

ty education within the shop includes: (1) Physical examination of applicants for employment. (2) Periodic re-examination of employees. (3) Proper introduction of the new employee to his job, his foreman, and fellow workers. (4) Safety committees. (5) Schools of instruction for safety committeemen. (6) Bulletin posting. (7) Interdepartment and interplant safety contests. (8) Prizes for "no accident" periods. (9) The "new broom" "crowing rooster" "bulls-eye" and similar contest trophies. (10) Rule books for employees and foremen. (11) Drawings and specifications for standard equipment. (12) Lectures and movies. (13) Suggestion system. (14) Plant publication. (15) Foremen's training courses. (16) Special drive days, such as "good ladder day," "chain and cable inspection day," "good house-keeping week," etc. (17) Pay envelope inserts of slogans and sermonettes. (18) Safe clothing. (19) Safe practice inspections. (20) Safety museums and "bad tool morgues." (21) Fitting and specially grinding goggles. (22) Fire prevention. (23) Sanitation. (24) Ventilation. (25) Warning signs and lights. (26) English classes. (27) Fatigue studies.

This score or more of activities have been listed without regard to logical sequence or relative importance, but they serve to indicate the versatility and ingenuity of the safety inspector of today. The list may readily be lengthened to hundreds of topics by "listening in" on the conversation of the many serious minded men and women who attend this and similar conventions.

Outside Educational Program

Our public safety work of today is but the logical development of the industrial safety movement, which recognizes the necessity, if success is to be attained, not only of inculcating habits of caution in youthful minds during the school years, but of so creating and maintaining an atmosphere of safety in the homes, school, on the street while driving or walking, and practically during all of our waking hours, as will cause each of us automatically and perpetually to substitute "think" for "forgot," "caution" for "recklessness," "protection" for "destruction," and thereby substitute life and happiness for death and injury.

This is not a full story of public safety work; my point is simply that our present day activity is the result of and receives its support from the industrial accident prevention movement.

In conclusion I wish to emphasize the great moral stimulus to intense and continued effort which develops from the very nature of safety work. Experience everywhere brings out the heartening and wholesome moral influence derived from association with men, women and children engaged in the conservation of human life and the elimination of painful injuries, and the stopping of misery of body and spirit that so frequently follows in the wake of preventable accidents. That moral stimulus is definitely a factor in the daily lives of American workmen, managers, and owners of industry.

Pre-cooling of Mine Air to be Studied

The deepest mine in the world, man's farthest approach toward the hot center of the earth, is the objective of Dr. Thomas T. Read, Chief of the Information Service of the Bureau of Mines, who represented the Interior Department at the Brazil Centennial Exposition at Rio de Janeiro. About 150 miles west of Rio the St. John del Ray Mining Company has burrowed in the earth, following a rich vein of gold ore, until the workings are nearly a mile and a quarter beneath the earth's surface. The temperature rises one degree for every 120 feet in depth and on the lowest level (6,426 feet) the temperature of the surrounding rocks is 118°F. No one could work at such a temperature, of course, and it is only through providing abundant fresh air forced in by fans, that the men can work effectively in the St. John del Ray. This mining company has tried the experiment of refrigerating its fresh air before forcing it into the mine, and the purpose of Dr. Read's visit is to ascertain whether precooling the air is enough of a success to justify its adoption in those mines in the United States where high temperatures are encountered in the deep workings. Questions in atmospheric control involved have very wide applications.

St. Paul Sliding Salaries

The City of St. Paul is now definitely committed to a plan of fixing the salaries of its municipal employees on a basis which makes the compensation automatically adjustable to the rise and fall in the cost of living. By this plan seventeen grades of service are established, excluding certain skilled and common labor employments.

Adequate Records of Lost Time in Industry

Prevention Waits Upon Full Reports and Careful Analysis of Industrial Morbidity

By L. R. THOMPSON, SURGEON, AND D. K. BRUNDAGE, ASSISTANT STATISTICIAN, U. S. P. H. S., WASHINGTON, D. C.

WE HAVE been so long studying the causes of death that we have almost lost sight of the fact that there is any such thing as sickness, and, reliable as death records have become in the last few years, they are almost useless from an occupational standpoint.

The standard certificate gives one question to occupation, and that question deals only with the general trade to which the deceased belonged. It does not attempt to classify him as to his employment in the trade, nor does it attempt to elicit the period of time he was engaged in the trade. On the other hand, our knowledge of health hazards in industry, for instance, that coal dust is innocuous and that silica dust is dangerous as referring to tuberculosis, is a result of careful review of mortality statistics, which show that the coal miner has a lower death rate from tuberculosis, and that the worker in silica has a higher death rate from tuberculosis than the average man.

The mere fact that we spend at least one-third of our time in our trade cannot but have a definite bearing on our lives. Collis and Greenwood¹, in studying the relationship of tuberculosis to certain environmental factors, found that factory employment had a direct bearing on the prevalence of tuberculosis in the early years of life, it being even a more important factor than overcrowding in these years. If factory employment, in an industry where there are no definite health hazards, is a factor to be given consideration, how much more important from a health standpoint are those industries where our mortality statistics, vague as they are, point to definite health hazards?

For a considerable period of time, the Public Health Service has been carrying on a campaign urging the keeping of adequate sickness records in private industries. The reasons for this campaign are stated in the following five points:

(1) It is believed from a standpoint of business efficiency that ab-

senteism and its causes, relating as they do to production, have need of close study.

(2) Our present-day knowledge of the dangerousness of individual health hazards is based on mortality statistics. We have but an indefinite idea of either the diseases caused by these hazards or the resulting time lost through disability.

(3) The basis of reasonable standards for the protection of the health of the industrial worker can only be obtained where reliable sickness records indicate the effectiveness of the protective measures.

(4) The efficiency of the factory in minimizing its known health hazards, can only be judged by comparing its sickness records with other plants engaged in the same class of work.

(5) Standardizing the sickness records used by private concerns makes possible accurate comparison, where before, even though the data were most valuable, it was collected in so many different ways as to make comparison impossible.

Public Health Service Aids

To a limited extent, the Public Health Service has, as a manner of encouraging the keeping of adequate sickness records, agreed to assist in tabulating the data collected and analyzing the results. As part of these data there have been received monthly reports from sick-benefit associations having a waiting period of one week. We have recently tabulated the reported cases of certain of the larger sick-benefit associations in comparison with the average frequency of sickness of all associations reporting, for the year 1921. The results are very interesting. We found that the average frequency of cases of sickness and non-industrial accidents causing disability for eight consecutive days or longer among 75,000 industrial employees in 1921, was 98 cases per 1,000 persons. The lowest rate was 48 cases per 1,000 persons, and the highest rate was 349 cases per 1,000 persons, making the range variation of more than 700 per cent. If sickness frequency can vary between 48 and 349 cases per 1,000 per-

sons, an almost unlimited opportunity is afforded for reducing disability occurrence among the employee groups whose sickness experience is considerably above the minimum rate of 48 per 1,000.

Among the companies which had rather high sickness rates, was a public utility company. The rate for this company was 143 cases per 1,000 persons. In order to ascertain if the men or women employees were causing this high rate, we tabulated the cases separately by sex. Ordinarily, sex is a considerable factor in the sickness frequency rate. One can expect a female sickness frequency rate 50 per cent greater than the male rate, at least as regards serious morbidity (i. e., cases lasting eight days or longer). But in the public utility company mentioned, sex did not explain the rate; the rate for the men employees of the company was 46 per cent above the average rate for males, and the rate for the women employees was 70 per cent above the average sickness frequency rate for females. Nor were these percentages due to small numbers, for there were 2,600 men in the association, and 440 women members.

The classification by sickness causes was interesting. The rates for several of the diseases and disease groups were about average among either sex. Cases of rheumatism and lumbago were 50 per cent below the average among the men and about 35 per cent below the average among women employed by the company. Among the men there was an excessive number of non-industrial accidents. But the diseases that really caused the high rate in this group were the respiratory troubles, which occurred 110 per cent oftener among the men and 142 per cent oftener among the women than one would expect if the average rates are taken as criteria. There was no tendency for one respiratory disease to monopolize the situation; all the respiratory illnesses except pneumonia were present oftener than the average frequency. The sickness rates have therefore given us a sort of definition of the problem of sickness in this company; they constitute a challenge and

1. Collis and Greenwood: *The Health of the Industrial Worker*, P. Blakiston's Son & Co., New York, 1921, p. 136.

indicate the opportunity in disease prevention work in this association. Another company may have a different problem, but the above may suffice as an illustration of the usefulness of a simple analysis of sickness data.

Comparisons Made Possible

A number of companies are now keeping track of every day lost from work by employees on account of sickness. A large company in Ohio found that its 1,300 office workers averaged 8.15 days lost from work on account of illness during the year ending January 31, 1921. Curiously enough, the annual rate for the employees of the U. S. Public Health Service, based on eight months experience ending in May of 1922 came out exactly the same figure. The commonly accepted estimate is 8 working days per person per year. Just as we were beginning to think that there probably was not very much variation in the sickness severity rate, the National Cash Register Company came out with the announcement that their 6,000 employees lose on the average only 1.5 days per person per year. Estimating every employee-hour saved from sickness as worth forty cents to the company, they claim a saving of \$120,000 annually because they had been able to reduce their disability rate so far below the average.

Now that it has been demonstrated that a rate of 1.5 days per year is possible of achievement, does it not seem about time that we began to compare notes in industrial morbidity work, and find out what the minimum rates are for different diseases and groups of diseases, and where our excess disability occurs?

What is the most practical method of getting together on this proposition? It would seem that the most feasible approach is through the medium of the monthly report. Practically all medical directors have some form of monthly report. And most industrial physicians are ready to admit that there is room for improvement in the character of the monthly report made. Instead of having the monthly report simply a count of the number of treatments, the number of redressings, the number of visits to patients, the number of physical examinations, etc., why could not the monthly report be made an instrument of actual helpfulness to the industrial physician? Is not there a need for comparative reports so that we can learn what diseases are causing an excessive amount of disability in a given plant, and can trace down

the excess disability to specific departments or groups of individuals? When attention is directed to the important facts disclosed from month to month in comparative reports, it is believed that we will accelerate the progress is disease prevention work. There is experience to substantiate this belief. A few years ago the Equitable Life Assurance Society inaugurated comparative monthly reports of accident frequency in the industrial establishments insured with them. According to their director of safety and personnel, the reports revealed so many weaknesses in the defense against accidents, and proved such a stimulus to preventive endeavor that reductions of 25, 50, and even 75 per cent in some instances could be attributed to the helpfulness of their comparative monthly reports.

Not all questions, of course, could be included in a brief, current analysis of industrial morbidity. The monthly reports should be supplemented with a more detailed, but still comparative, annual analysis. As an example of the sort of question that ought to be investigated in an annual analysis is the matter of influence of length of service upon the sickness rate. The B. F. Goodrich Company of Akron, O., Norton Company of Worcester, Mass., Hood Rubber Company of Boston, have found that the frequency of disability cases varies considerably according to length of service with the company.

Sickness and Turnover

Sickness rate frequency among employees of the Goodrich Company who had been with the company for five years or more was only one-fourth of the rate for the group which had been in the company service for less than three months. It has been suggested that in every plant there will be found a correlation between sickness and labor turnover. Why is the new employee sick two or three or four times as often as the old-timer? This is a point well worth inquiring into.

Referring again to the high rate of respiratory troubles in the public utilities company previously mentioned as varying from 110 per cent above the average among men, and from 142 per cent among women in one individual establishment, to one interested in industrial hygiene, naturally, the first inclination was to note the health hazards in this particular plant, and they are listed as follows: (1) Sudden variations in temperature; (2) dampness; (3) inorganic

dust; (4) acrolein; (5) amyl acetate; (6) benzene; (7) lead; (8) methyl alcohol; (9) sulphuric acid; and (10) turpentine.

Of these ten industrial hazards, all except lead are known to cause irritation to respiratory organs. It would seem therefore the reasons for the high respiratory rate are evident, and that this plant has in its sickness records indisputable evidence that measures used for the control of the above industrial hazards, if any such control is attempted, are both inefficient and inadequate.

The subject has been dealt with briefly, since our idea has only been to add another concrete example of the value of sickness records, and to bring out clearly their intimate relationship to the study of lost time in industry and to a large measure their dependency on preventable causes.

Movement for Federal Control of Child Labor

Those states which today permit the employment of children under fourteen years of age rank with Japan, China, and India in the protection which they give to working children, declares Miss Grace Abbott, chief of the Children's Bureau of the U. S. Department of Labor. In her annual report she points out that nearly all the civilized western nations afford their children the protection that a number of American States withhold—that of a fourteen-year age minimum. The extent, she says, "to which the children of the United States have suffered from the nullifying of the Federal child labor tax law"—on May 15 of the present year by Supreme Court decision—"may be measured by the fact that only thirteen states meet in all particulars the standards of the Federal law." Since a previous attempt by Congress to bring child labor under Federal control had also been declared unconstitutional, the Supreme Court "seems to have made the issue clear," the report says, "either we give up the plan of a Federal minimum and rely solely upon the states, or we undertake to secure a Federal amendment definitely giving to the United States Congress the power to pass a child labor law."

A constitutional amendment which would secure to the children "all the advantages of our Federal form of government by giving to Congress the right to establish a Federal minimum and leaving to the States the right to raise and not lower standards," is recommended by Miss Abbott.

The Status of Child Labor in Ohio*

Administration of School and Labor Laws Needs to Be Harmonized

By EDWARD N. CLOPPER, PH.D., SECRETARY, CINCINNATI CHILDREN'S BUREAU, CINCINNATI, OHIO

WHAT is child labor? What is a child? It is hard to answer these questions nowadays. Time was when a child was a very young person indeed, but modern methods of care and protection and modern social legislation have extended the period of childhood until now any one under the age of eighteen years is technically considered a child for social welfare purposes, just as in the field of law a person who has not attained to his majority has long been technically known as an infant. But popularly, a fifteen or sixteen-year old girl is not called a child, but a girl, perhaps a flapper, and similarly with a boy of such age. The usages of the technician are not often the usages of the people. However, for the purposes of this discussion, let us say that a child is a person under the age of sixteen years.

What then is child labor? One might say, off-hand, that it is any work that a child does, and this definition may be acceptable to the extremist, but there is such a wide range in the kind of work that children do, as well as in the conditions under which the work is done, that we must differentiate if we are to be reasonable. Raymond Fuller distinguishes between desirable and undesirable forms and conditions of work for children; the desirable he terms children's work, and the undesirable, child labor. This distinction is based upon the consideration that all children should do some kind of work, and that it should be educational, developmental, and recreative in character; this is children's work. On the other hand, work which is not of this character or which is carried on under conditions inimical to the growth and development of the child is anti-social, and therefore to be classed as child labor. In a word, children's work is educative, child labor is exploitative. This conception recognizes the disciplinary value of suitable work for the purposes of child training as well as its educational value, while on the other hand, it condemns all forms and conditions of employment which result in abuse of childhood. So we may

venture to define child labor as any employment of a person under the age of sixteen years, whether for wages or not, whether under the direction of others or not, which interferes with his growth, development, health, education, training, or proper measure of recreation.

Decrease Scrutinized

With this distinction in mind and accepting this definition, let us see what is the extent of child employment in the United States. Our only authoritative source of information for the country as a whole is the national census, and in consulting its figures we are gratified to find that in the decade from 1910 to 1920 there was an absolute decrease in the number of children 10 to 15 years of age inclusive, reported as gainfully employed, from almost two million to slightly more than one million. The reduction amounted to 46.7 per cent. This is a remarkable showing and it becomes all the more noteworthy when we consider that while the number of child workers was going down, the number of children was going up, for of course, the child population increased during this decade. As a matter of fact, the number of children from 10 to 15 years of age increased 15.5 per cent in this ten year period; hence the decrease in the number of child workers in proportion to the child population becomes very impressive. In 1910, the government tells us, 18.4 per cent of all children 10 to 15 years were employed, as against only 8.5 per cent in 1920.

Unfortunately, the figures are not so cheering as they appear to be. One naturally assumes that those for 1910 can safely be compared with those for 1920, but this is not the case. The census, of course, does not represent conditions as they exist throughout the year, but as they exist on a certain selected day. In other words, a census is a cross section revealing conditions as they are found at the time when the cross section is made. We find that the figures for 1910 represent conditions on April 15 of that year, while the figures for 1920 represent conditions on the first day of January of that year. Now, there is a

good deal of difference between conditions in the middle of April and on the first of January, and this is especially true in the field of labor because of the seasonal character of a good many occupations. Forms of work which are active in the middle of Spring may be dormant in the middle of winter, and therefore cross sections made in these seasons are not wholly comparable. In the matter of child employment, this element of error in the comparison of the figures for 1910 with the figures for 1920 is probably considerable because the chief occupation in which children engage is agriculture and, while agricultural work is fairly active in the middle of April, it is largely at a standstill the first of January. We expect to find a large number of children engaged in agricultural activities of one kind or another in the Spring, and as a matter of fact 72 per cent of all the child workers reported in 1910 were returned as in agriculture, and we also expect to find but few reported in such work in mid-winter; and yet the number reported in agriculture in 1920 is again far larger than in any other kind of work—61 per cent being returned as engaged in this field. The contrast between the two census is therefore not nearly so great as one would be justified in expecting, when the difference in the census dates is taken into consideration. After having allowed for the difference in conditions existing at the different times when these two cross sections were made, we still find a gratifying decrease in the extent of child employment. Of this there can be no question.

The decrease has taken place in spite of the increase in child population, and moreover we must remember that not all the children reported as in gainful occupations in either 1910 or in 1920 were undesirably employed, for many of them were doing children's work rather than child labor and profiting from their employment rather than suffering from it. The reporting of a child by the census as gainfully employed does not necessarily mean that he is not attending school, or that he is being in any way abused. It is often assumed by care-

*Address before Ohio Welfare Conference, Columbus, O., November 2, 1922.

less thinkers that the census figures on child employment represent a wholly undesirable situation in which all the children reported are being exploited in mines and factories and denied the advantages of education. As a matter of fact, the figures include every form of occupation, desirable and undesirable, and whether interfering with school attendance or not, but it is impossible to determine what portion of the total are child workers, and what portion are child laborers. All we can be sure of is that they are neither all child workers, nor all child laborers.

Schools Cause Decrease

What is the great numerical decrease and the still greater proportional decrease in child workers due to? For one thing, laws restricting the employment of children were very generally strengthened in the period between the census, while at the same time standards of enforcement were raised and greater provision made for administration; that is, both the means and the method of restriction were improved. At the same time there was development of schooling facilities and strengthening of school attendance laws and of machinery for their enforcement; courses of study were made more practical and more attractive, and in this way large numbers of children and their parents came to look upon schooling as preferable to employment during the years of childhood and adolescence. Sentiment grew against child labor and for children's work.

One factor in this change has, however, been removed since 1920, namely the Federal law concerning the employment of children in certain occupations. In 1910 there was no Federal law in this field and when the census was taken in 1920, one was in force, but since then it has been declared unconstitutional and undoubtedly some children who would not now be employed if it were still effective, are at work. It provided that factories, mines, and quarries had to pay a prohibitive tax if they employed children under fourteen years of age at any time, or children between fourteen and sixteen years of age at night or more than eight hours a day. Most of the children under sixteen years of age in this country live in states where these provisions are in force under state laws, and indeed a large number live in states whose standards are considerably higher, so that assuming that the enforcement of state laws is effective, the annulling of the Federal law has not thrown down the

bars to the employment of any great number of children.

But what of Ohio? When we look at the census figures for this state, we find that the absolute decrease has been even greater than in the country at large, namely 57.7 per cent, and the proportional decrease is also greater inasmuch as the child population of the ages under consideration increased 17.5 per cent. In 1910, 8.4 per cent of all children from ten to fifteen years of age were employed, as against only 3 per cent in 1920. So while the Nation has cause to congratulate itself upon the great reduction in child employment, the state of Ohio has all the more reason to do so. Unlike the United States as a whole, the field which most working children enter in Ohio, according to the figures, is manufacturing and mechanical industries. The field ranking next is trade, and agriculture comes third; but we have reason to believe that if the census had been taken in April instead of in January, the number in agriculture would have been greater. We know that agriculture is a leading occupation in Ohio and that it is much more active in the spring than in mid-winter. We know, moreover, that there are in this state highly specialized forms of agriculture in which large numbers of families are employed in the appropriate seasons; this is true in the cultivation of sugar-beets, onions, grapes, berries, and orchard fruits. In Hardin County the cultivation of onions is very extensive and labor is brought in from every direction. Children are used here in the spring, summer, and autumn and of late years their employment in this work has taken on aspects that are not unlike the conditions that obtained years ago in manufacturing, for the state labor laws do not apply to children in agriculture and such children are affected only by the school attendance law which provides for the issuance of work permits to those under eighteen years of age. The use of children in this way has become so extensive and so open to attack similar to that made upon the employment of children in factories and stores in the past that measures will have to be taken to afford the necessary protection. Specialization in agriculture is ushering in the same evils that attended specialization in industry, and they will have to be controlled in the same way.

If Ohio's laws, even as they are at present, were well enforced throughout the state, there could be but little child labor. Newspaper selling, domestic service, and agriculture are about

the only forms of work open to children under sixteen years of age, and these are open to them only outside of school hours. The problem in Ohio, aside from the agricultural situation, is largely a problem of administration. The child employment and school attendance laws are on a high plane and it has long been recognized that they must be complementary, yet, although they are twins, the administrative system of one differs radically from that of the other. It is strange that the state should be careful to harmonize the provisions of two laws so closely related as these and yet establish wholly different systems of administration for them. The labor law is administered by state officers with no local assistance, while the school attendance law is administered by local officers with no state supervision. We need a combination of state and local service in the administration of both of these laws just as we have a combination of their provisions. The state and the local community must join hands and each realize its responsibility and discharge its obligation cooperatively with the other if the situation is to be satisfactorily handled.

Metal-Mine Dust Study by Bureau of Mines

For several years the Bureau of Mines has studied dust and ventilation in metal mines as affecting the health, safety, and efficiency of underground workers. A cooperative agreement was made in 1915 with the U. S. Public Health Service; since that time field observations in metal mines in Arizona, California, Idaho, Montana, Michigan and Nevada, and less extensive observations in several other states have been made by mining engineers of the U. S. Bureau of Mines, and doctors of the U. S. Public Health Service. The work, in general has been conducted along the lines followed by South African investigators in the mines of the Rand in connection with study of miners' consumption, but a much wider range of conditions has been encountered in the metal mines of the United States. In addition to effects from dusts of various descriptions, and degrees of harmfulness, the health, safety and efficiency of our metal miners are, in places, seriously affected by heat, humidity, gases, and movement of air. A summary of the bureau's investigations, with a bibliography on the subject, is given in Serial 2374, which may be obtained from the Bureau of Mines, Washington, D. C.

The High Rate of Tuberculosis in Industry*

By FREDERIC S. KELLOGG, M.D., PITTSBURGH, PA.

IMPROVEMENT in the treatment of tuberculosis has been so great in recent years and the fall in the mortality so marked that the impression is current that tuberculosis is another disease which has been brought practically under control, thus promoting a certain complacency regarding existing conditions and a sense of security which are wholly unwarranted.

While the fall in tuberculosis mortality is undoubtedly very marked, the figures from which these rates are computed are necessarily very large and, of course, include very diverse groups of people, some of which groups are so well cared for and their lives are passed under such favorable conditions that the mortality from tuberculosis in their case would be very low. And the favorable showing of such sheltered and fortunate groups offsets the much more unfavorable and even alarming conditions of others living and working under adverse circumstances. A study, therefore, of various groups of the population and of particular industries will show that the line of advance against tuberculosis is very irregular—in fact, that instead of advance many centers of retrogression exist.

A case in point is that of the granite workers in the state of Vermont. The mortality from tuberculosis in the general population had been reduced one-half in the last twenty years. The people of that state might have indulged in the complacent belief that tuberculosis was being brought under control, but for the remarkable fact that, though the mortality for the state at large was reduced by one-half, the mortality among the granite workers had increased three fold. After a very extensive study of health conditions among the granite cutters the interest of the members of the Granite Cutters Union was enlisted and the men voted to assess themselves one dollar each to pay for necessary x-ray work. As a result of these studies the increasing and alarming mortality rate in this industry was shown to be due to the increasing use of pneumatic tools for cutting granite, a process which produces a fine dust, very harmful to the lungs, the deleterious effects of which, however, were

not observed for ten years, and the maximum effect not produced for twenty years, when the mortality went up very rapidly.

The case of these granite cutters is especially instructive in bringing out the great advantage gained by particular industries in having medical supervision and medical investigation. It has even greater significance in proving the fallacy of believing that the favorable showing for the state at large in reference to tuberculosis necessarily extended to all the industries of the state, the granite cutters included. The bad and dangerous trades were hiding behind the good record of a large population.

It has been well pointed out by Dr. Frederick L. Hoffman, the vice-president of the Prudential Life Insurance Co. who made the report¹ of this investigation, that there is urgent need for similar work in other industries. Only in this way will the hazards peculiar to certain industries be eliminated and conditions fraught with danger both to the employees and to the public be corrected.

Study Trades Separately

Statistics as to the morbidity or mortality from tuberculosis of the whole population of a state or of a city, do not give a correct idea of the tuberculosis rate in any given industry or among industrial workers as a whole. Some estimate or survey of the individual industries is called for. There are two ways in which such an estimate may be secured. The morbidity from the mortality found in any group of people may be determined by making use of the Framingham factor, ratio of ten active cases to one death from tuberculosis. The estimates given in this paper, with the single exception to be noted later, have been so determined; the tuberculosis mortality rate has been multiplied by ten, which is considered conservative. The only other way by which we can find out how many cases of tuberculosis exist in any particular industry is to make a complete study of that group. The mere recital of the number of cases of tuberculosis found in any industry is not very illuminating and does not convey any real information unless we have been accustomed to comparing figures as

to the morbidity of various diseases. A better idea as to the significance of such figures can be secured by comparing them with the figures for the morbidity of some other diseases with which we are quite familiar.

Dr. R. G. Burns² has submitted some interesting figures showing the morbidity in Pittsburgh from some of the most common infectious fevers: The morbidity per 100,000 persons in 1921 for scarlet fever was 288.6; diphtheria, 271; and measles, 317. In the last ten years the highest morbidity in this group is recorded for measles in 1920, when the incidence was 1,627.6.

It is instructive in this connection to consider the figures also for the morbidity from typhoid fever, a disease which was a scourge in Pittsburgh for so many years. The morbidity from typhoid fever in 1907, before the installation of filtration plant, was 1,119.2; in 1908, after installation of filtration plant, but without chlorination, the rate was 351.6; a rate which in 1912, with both filtration and chlorination, was reduced to 78.2, and in 1921 to 41.5.

To compare these figures with the morbidity for tuberculosis: The mortality rate per 100,000 population for the whole city of Pittsburgh for the two years 1920-1921 was 87.5. Estimated from this the morbidity for the same period was 875. (It may be said that the record of Pittsburgh for tuberculosis is much better than that of many other cities that might be mentioned. These figures will enable a better understanding of the morbidity from tuberculosis in some of the special industries of Pittsburgh. The figures, stated in all cases per 100,000 population are estimated from data contained in a study made of this subject by Dr. H. T. Brown³ of the Tuberculosis League Hospital. Some of the industries noted (Table I) have only a small number of employees engaged but the morbidity has been stated per 100,000 to make them comparable with other diseases. An estimate⁴ of the morbidity from tuberculosis among the employees of a large department store⁵ was secured by actual examination and study of 1,210 members of that group. Forty-two were found to have tuberculosis, the

*Read before the Sixteenth Conference of Industrial Physicians and Surgeons, Pittsburgh, Pa., November 17, 1922.

1. Hoffman, Frederick L.: The Problem of Dust Phthisis in the Granite Industry. Bul. No. 293, Govt. Ptg. Office, May, 1922.

2. Burns, R. G.: Mortality Reports of the Pittsburgh Department of Health, 1920-21.

3. Brown, H. T.: Tuberculosis in Pittsburgh Industries. Reports from Tuberculosis League Hospital, 1921-22.

TABLE I.—MORBIDITY OF SOME INDUSTRIES OF PITTSBURGH, PER 100,000

Industry	Morbidity
Paints and varnishes.....	1,087.7
Bisulfurous coal.....	1,105.4
(Coal, Illinois Coal Mines. Hayhurst).....	1,065.0
General wood workers.....	1,520.3
Brick, cement, and stone workers.....	1,650.0
General factory workers.....	1,952.4
Meat packers.....	2,044.6
Iron and steel workers.....	2,058.4
Bread and bakery industry.....	2,300.0
Electric railway companies.....	2,389.1
Cement workers.....	2,355.2
Confectionery.....	2,662.6
Butter, cheese, and condensed milk.....	2,991.7
Tobacco Workers, Men.....	2,993.0
Women.....	3,976.8
Telegraph Company.....	3,000.0
Telephone Company.....	3,124.2
Stenographers.....	3,200.0
Laundries.....	3,347.4
Hats and caps.....	3,766.7
Glass blowers.....	3,836.0
Brass and bronze workers.....	3,959.4
Marble and granite work.....	3,615.5
Department store.....	3,459.2

diagnosis being confirmed by the sanitarium in each case. In addition to the forty-two cases positively diagnosed seventy-three employees, many presenting active symptoms of tuberculosis, left the service of the company before their cases were studied and the diagnosis completed. The figures given have been estimated only from the cases in which a positive diagnosis was made, which actually does not fully represent the incidence of tuberculosis in that group. It would be safe to say that the morbidity of department store employees is over four thousand per 100,000 employees.

Real Conditions Observed

It will be seen by a study of these figures that the actual morbidity from tuberculosis among the various industries of Pittsburgh has been obscured by the favorable reports given for the whole population. An immense amount of work must be done before there can be any real control of tuberculosis among the working people of Pittsburgh. If the health of these workers could be so safeguarded that tuberculosis would occur no more frequently in this group than in the general population the showing for tuberculosis in the city would be markedly improved and a great advance made toward the control of the disease. Any real advance in the struggle against tuberculosis must be effected by systematic medical care directed toward these congested and dangerous centers.

Special interest attaches to the discussion of this subject at the present time as labor leaders are advocating sickness insurance as a method of taking care of the sick in industry. With-

out discussing the question of sickness insurance, it certainly is incumbent upon us to devise and put into operation better and more effective means for taking care of the sick in industry. If we are to eliminate tuberculosis from industry we cannot afford to neglect any sickness or defect found in an employee. If a man is broken down in health from any cause he must receive adequate treatment; otherwise, any undue amount of exposure may develop tuberculosis whether at the time of our examination the worker shows an active lesion or not. An efficient medical service, therefore, assumes the task not only of detecting disease among the employees but sees that the sick or disabled employees receive adequate treatment, that follow-up treatment is assured, and complete rehabilitation of the sick employee effected.

Little Is Being Done

Various methods have been used for the care of the sick in industry, or at least to rid the industry of the burden of so much sickness. The most common, the routine physical examination of applicants for positions, has aroused great hostility from labor organizations. If the medical service stops with this initial examination certainly little has been done for the employee and it seems that the examination is designed rather to exclude the defective employee from service than to do anything for his rehabilitation. Diagnostic clinics are in use both in some large plants and also under the direction of some state governments, as in New York state.

A scientific diagnosis is an excellent thing and is a necessary beginning but does not insure adequate treatment. If the full benefit of the scientific diagnosis is to be secured and the patient receive proper treatment there must also be some effective system for follow-up work. In my experience⁶ it was found that of more than a thousand cases who had received a thorough examination and a careful diagnosis only six per cent were impelled by the scientific diagnosis to receive adequate treatment.

Protection of some insurance or disability fund is usually the reason and the sole aim of the medical work done among employees. Physical examinations for this purpose are excellent things, but are hardly enough to control tuberculosis or to maintain the health of a group of employees. Of the 2,252 industrial plants said to be

operating in Pittsburgh only a small proportion have any system whatever of medical care of sick employees.

Greater care and interest in the condition of employees would be secured by some extension of the scope of operation of the quarantine laws to prevent the harboring of so much communicable disease in industrial establishments. Scattered cases of infectious diseases in the residential districts are reported and cared for, but persons suffering from tuberculosis and other infectious diseases are constantly found working in industrial plants, and there is no method by which they may be detected and reported. The author has seen in different industrial establishments active cases of scarlet fever, diphtheria, whooping cough, pneumonia, measles, erysipelas, active secondary syphilis, gonorrhea, impetigo contagiosa, scabies—as well as tuberculosis. Other contagious diseases appearing in the city are sure to be found also in these industrial establishments because, as a recent writer has said, they are the clearing houses of disease, the distributing centers from which cases are broadcasted throughout the community.

A parallel condition occurred a number of years ago during an outbreak of bubonic plague in New Orleans. The Public Health Service was called upon to control it. Suppose in such an emergency those health officers had said: "We will not interfere with anyone in the city. Business will go on as usual, but if any cases appear outside the city we will quarantine those cases." Yet that is about the procedure in reference to tuberculosis, syphilis, and other infectious diseases. Scattered cases in residential districts are reported and quarantined when necessary, but there is no means of detecting or controlling disease in the congested and dangerous industrial centers.

It is not right that men or women should have to risk life or health by being compelled to earn their living in contact with tuberculosis and other infectious diseases, but the fact remains that probably most of the 118,000 industrial workers of Pittsburgh are constantly exposed to disease in this way.

The solution of the question of the control of tuberculosis and of the sick in industry has been pointed out to us by experience in industrial surgery. Not a great many years ago industrial surgery was practised in a careless way and with poor results. Little interest was shown in the accidents and injuries occurring in indus-

4. Hayhurst, Emery R.: Health Hazards and Afflictions of Soft Coal Miners, Modern Medicine, I., p. 127, June, 1919.

5. Kober, G. M.: Occupation in Relation to Tuberculosis, Public Health Reports, XXXV, p. 751, March 26, 1920.

6. Kellogg, Frederic S.: Rehabilitation of Employees, Jour. Indust. Hygiene, 1920, III, No. 9, p. 276.

try. The workmen's compensation law was enacted and the responsibility for accidents in mills and factories was definitely placed on the industry concerned. The accidents were a risk inherent in the business and, therefore, it was held to be unjust that the unfortunate victim should bear the full burden of the accident. When the burden was placed on the business as a part of the cost of production the industries placed their surgical work in the hands of highly trained men. A tremendous development of industrial surgery resulted with a vast improvement in the care of the injured in industry.

Now traumatisms are certainly not the only accidents of industry. A man who becomes infected with tuberculosis when compelled to work in daily contact with the disease is a victim of an accident also—an accident of industry. When one or two thousand men or more work together under one roof we know in advance that tuberculosis and all other infectious diseases will spread from that center. Such infections constitute a risk inherent in the business, as much so as any physical accidents that may occur in the course of the day's work. An army in the field loses more men by disease than from bullets. Accordingly, a medical staff is organized and disease is controlled. But our industrial army has no such supervision, and disease is not controlled. Often it is not even suspected.

Disease occurring in such masses of men is an accident inseparable from such organizations and the responsibility for their control rests upon the administration which brings them together, whether it is civil or military. Now there is, of course, a vast difference in the status of the individual in civil and military life and for that reason we could not expect, or wish, every industrial concern to undertake the medical treatment of their employees. But industry should safeguard its employees from the inevitable hazards of their occupation, whether the accidents are traumatisms or infections. Further, by taking advantage of the many medical agencies which already exist in our cities, sick employees may receive some adequate treatment. No sick employee should be compelled, or allowed, to work.

The burden of all of the accidents of industry should rest not upon the individual employee, but upon the industry and the cost of the control of disease among the workers should justly be added to the cost of production. In point of fact industry does

pay the cost in lowered efficiency, in loss of time, in poor workmanship, and the disputes and contentions of sick people. The question, therefore, is rather shall this cost be paid in the future as extravagantly and blindly as in the past.

When medical work is thoroughly organized in industry tuberculosis can and will be controlled. There will be immense betterment in the condition of the working people and the much feared cost will be transformed to enormous economic gains.

Eye Sight Conservation

AIDED by Federal and state officials, university professors, engineers, industrialists, and civic leaders, the Eye Sight Conservation Council of America has set in motion a movement for the observance of Eye Sight Conservation Day in the schools.

Recent surveys have revealed that defective vision among children and workers in the industries has caused enormous economic and physical losses. Authorities declare that these losses can be wiped out by proper and systematic application of the principles of eye hygiene.

With the cooperation, among other leaders, of James J. Davis, secretary of the United States Department of Labor, Guy A. Henry, general-director of the Eye Sight Conservation Council, is directing the campaign, which aims to accomplish savings in health and money by carrying the message "First Health, Then Wisdom" to every city and hamlet in the land where children are taught.

The Eye Sight Conservation Council is enlisting the assistance of state commissioners of education, and of county and district school superintendents. The object of an Eye Sight Conservation Day in schools is to discover the fact that a child has a defect of vision or symptoms of a defect, rather than to determine the degree of efficiency.

Leading universities are taking up eye conservation. Columbia was the first to make it a part of its regular summer school curriculum, and the results attained were so satisfactory that the course will be continued. The University of Chicago, New York University, Ohio State University, Teachers College, Columbia; and the College of the City of New York have, through members of their faculties, identified themselves with the movement. Other active participants are L. W. Wallace of Washington, executive secretary of the Federated American Engineering Societies; Dr. Morton G. Lloyd, chief of the Safety Section of the United States Bureau of Standards; John J. Tigert, United States Commissioner of Education;

Allan J. McLaughlin, United States Public Health Service; and Arthur L. Day, director of the Geophysical Laboratories of the Carnegie Institution, Washington.

The Hoover Committee on the Elimination of Waste in Industry stressed the importance of eye care, revealing heavy economic losses because of poor vision. Secretary of Labor Davis, in a statement issued by the Eye Sight Conservation Council, asserts that care of the eyes is a national duty.

"In my earlier life as a workman and in the course of my duties as Secretary of Labor, I have come to know something of the problem before the Eye Sight Conservation Council, particularly in its relation to men and women in industry," says Secretary Davis. "It is a problem in human service which in its solution will mean much to the whole service of America in life, economic prosperity and happiness.

"Sight is, paradoxically enough, the most highly prized and at the same time the most abused of the human senses. I am informed that of the forty million or more men and women who are gainfully employed in the United States, upwards of twenty-five million suffer from some form of defective vision which is capable of correction and which should be corrected. This is an astounding number, and its reduction to a minimum would plainly better the condition of these sufferers, increase their efficiency in industry, and generally benefit the nation. . . . Whatever can be done in the way of improving employment conditions in this respect will be of inestimable service to the man who labors."

A recent endowment received by the University of Glasgow enables the founding of a chair of public health which has heretofore been part of the department of medical jurisprudence. With the foundation a place has been given to teaching public health in a city of over one million, with a birth rate of 29.1, a death rate of 15.3, and infant mortality rate of 105.

Place of Government in Fatigue Elimination*

By DR. A. F. STANLEY KENT, FORMER DIRECTOR OF THE DEPARTMENT OF INDUSTRIAL ADMINISTRATION, COLLEGE OF TECHNOLOGY, MANCHESTER, ENGLAND.

FATIGUE investigations in Britain may be divided into three periods: (1) That of purely private enterprise; that of tentative government action; that of serious government action. One of the earliest investigators of industrial fatigue in England was Professor Pembrey, who approached the subject from the scientific side and endeavored to elaborate a test for the condition; but after a time he was discouraged by difficulties encountered. On the engineering and management side, Messrs. Mather & Platt of Manchester, carried out experiments in 1893 which showed that "*before breakfast*" work was extravagant and ought to be avoided, and the government later on introduced the 48 hour week into arsenals and dockyards, but, though results seemed decisive, no general alteration of hours followed.

My own attention was attracted to the subject early, my interest being especially stimulated by the proceedings of the international Congress on Hygiene and Demography held at Brussels in 1903, and at other places in subsequent years, and also by the writings of Taylor, and later of Gilbreth in America. While the work carried on in America dealt largely with the engineering and management sides, my own was especially directed towards the physiological aspects of the subject.

The period of private enterprise ended when in 1913 the Home Office, yielding to representations made by Dr. T. M. Legge, C.B.E., His Majesty's Medical Inspector of Factories, placed certain facilities at my disposal, and made a contribution towards the expenses of investigations I had in progress. Some of the results obtained are recorded in the government publications issued in 1915 (White Paper, Cd. 8056), and 1916 (Blue Book, Cd. 8335).

In September 1915 a body appointed by the Ministry of Munitions to superintend the health of workers in munition factories, and known as the health of munition workers committee, turned its attention to the subject, conferred with the Home Office, and decided to initiate investigations in national factories engaged in the manufacture of munitions of war. Some

of the results of these researches may be found in reports published at the time. Thus, for a period, two distinct sets of investigations subsidized by the government were in progress, one started before 1913 conducted by myself for the Home Office, and one began in 1915 conducted by Dr. H. M. Vernon for the Ministry of Munitions.

For a considerable time no further advance was possible, in spite of repeated efforts to extend the scope of the investigation and to place it upon a wider basis. Neither Dr. Vernon nor I had anything approaching an adequate staff and to obtain well authenticated results rapidly was impossible. Finally, however, in July, 1918, the Home Office, acting through the department of scientific and industrial research, and the medical research committee combined to appoint a committee (industrial fatigue research committee) with the following terms of reference:—"To consider and investigate the relations of the hours of labor and of other conditions of employment, including methods of work, to the production of fatigue, having regard both to industrial efficiency and to the preservation of health among the workers."

This body has now been in existence for about four years and has published a number of reports upon investigations undertaken to elucidate particular points of interest. It is unfortunate that while many of these are of considerable value, others have met with sharp criticism, especially from the engineering section of the press. At one time the continued existence of the committee appeared to be doubtful, but it has now been reconstituted, and with the advantage of close association with the medical research council, should have a useful future before it. It must be recollected that at the time of its appointment the number of persons in Britain who possessed any practical acquaintance with industrial fatigue was extremely small, while the magnitude of the task placed before it, and its unusual difficulty, made it almost impossible to avoid initial mistakes. Moreover, the facts which it has collected must always be of value, whether the original interpretations placed upon them are right or wrong.

The above is a short resumé of the part the British government is taking

in work relating to fatigue. Were I asked the question "What, in your opinion, should be the place of Government in Fatigue Elimination?"—my answer would be somewhat as follows:—

Government organization is admirably fitted for the collection of facts relating to the general conditions under which labor is performed—facts relating to ventilation, heating, illumination, hours of work, rest pauses, rates and systems of payment, accident incidence, and rates of output—and to make use of such facts as a guide in legislation. But government will always be at a disadvantage in investigating the human side of industry. The suspicion with which government interference is regarded makes this inevitable. Hence, the influence which, in a particular case, the worker's mental attitude has upon excessive labor turnover, fatigue, loss of time, and generally unsatisfactory conditions in a factory, is, to some extent, a closed book to the government inquirer, largely because of the formality with which a government inquiry is conducted. These intimate matters can only be investigated successfully by the private worker who is not patently connected with a government department.

But even in the private worker many unusual qualifications are necessary—a real understanding of, and sympathy with, the workers' condition, the capacity to become for a time one of them, to live as they live, to share their hardship, and, above all, to let them see that, rather than deeming himself their superior, he has mastered his lesson and thoroughly appreciates the dignity of the labor which they perform. Conditions may be different and men with such qualifications may be common in America. In England they are, in my experience, excessively rare.

Safety First cannot begin too early, in fact, the earlier it begins, the more certain and lasting are its effects. In addition to teaching kindergarten children to sit still, why not teach them to walk without bumping into one another? Why not have a traffic game to teach them the rules of the road? Why not play speedcop to inculcate a respect for law? This is practical Safety First

*Read before the Society of Industrial Engineers, New York City, October 18, 1922.

Record Keeping and Statistics

AT A conference for welfare supervisors, held at Balliol College, Oxford, England, September 15-20, 1922, H. M. Vernon, investigator for the Industrial Fatigue Research Board, delivered an address on Record Keeping and Statistics.¹

Many of Dr. Vernon's remarks are applicable to industrial medical and nursing procedures in this country. Excerpts from his speech follow:

I have frequently been offered statistical records which were practically useless for my purpose, or, in fact, for almost any purpose, because of small omissions which could easily have been remedied at the time the records were made, if it had been anybody's business to superintend them. I hope, therefore, that I may be able to induce some of you to do what you can to supervise and improve such records as are already kept by your firms, and to initiate others when opportunity offers.

Labor Turnover

One of the most important of the subjects on which we specially desire accurate information is labor turnover, or industrial wastage. . . . Prof. Collis and Dr. Greenwood, in their book on the "Health of the Industrial Worker," quote an instance in which a number of establishments between them increased their total personnel from 39,000 to 47,000 in the course of a year (1912), or by eight thousand persons. To effect this increase no less than 44,000 persons were engaged, or five and one-half times as many as were kept in employment. This turnover is an exceptionally large one, but arguing from all the available information, the authors conclude that on an average the labor turnover in our factories and workshops is about 100 per cent a year, or that on an average each industrial worker changes his or her place of work once a year. The cost of engaging a fresh worker is very considerable, both to the employer and the employee. It may take weeks or months before the fresh worker learns his job and attains a good output, and during the learning period he is lowering the productive power of expensive plant and machinery. . . .

If this question is investigated, as it needs to be, I ask you to do it methodically, and obtain numerical details. The value of your inquiry will be greatly enhanced if you can get definite information as to the percentage labor turnover, for then you will be able to compare it from month to month and year to year, and if it shows a sudden and unexpected rise at any time, you would naturally endeavor to determine the cause and find a remedy. Again, if you find that the wastage at the factory to which you are attached is greater

than that observed at other and similar factories, you would endeavor to track down the reasons, and if you succeeded, to bring them to the notice of the management. If, on the other hand, the wastage at your factory is less than elsewhere, it would serve as a legitimate source of pride.

Lost Time Records

Even more important than the question of labor turnover is that of the health of the workers in the factory, and it is the main duty of the supervisor to do what he can to maintain and improve the health of the workers under his charge. . . . I have found huge firms spending hundreds of thousands of pounds a year in wages, who have not troubled to keep any lost time records whatever. And yet the keeping of such records is a comparatively simple matter. The timekeepers necessarily have to note down the timekeeping of all the employees, for the purposes of wage payment, and it would give them very little more trouble to keep permanent records of these times, in a suitable form for tabulation, than to throw them aside after each week, as they usually do at present. . . .

Disablement from Accidents

One of the chief causes of lost time in some industries is chargeable to accidents and injuries, and I am sure that all supervisors must take a considerable interest in this class of disablement, and be desirous of doing what they can to diminish it. Thanks to the rapid spread of the 'safety first' movement, increasing importance is being attached to the prevention of accidents, and supervisors can often do a great deal towards fostering the movement. In some of our largest factories special safety inspectors have been appointed, who give their whole time to accident prevention, but as far as I am aware, such inspectors are quite exceptional. In the absence of an inspector, what can a supervisor do? First, he can see that a proper record is kept of all accidents treated at the surgery. At some factories only the more severe accidents which have to be reported to the Home Office are noted. This is a pity, for much useful information can be obtained from a statistical study of the minor accidents treated. . . .

Factory Conditions

One of the numerous duties which supervisors may be called upon to undertake is to see that, so far as possible, the workshop conditions are conducive to the maximum degree of health and efficiency in the workers. No more important duty can be laid upon you, for it is to be remembered that, so far as waking hours are concerned, many of our industrial workers pass nearly half of their lives in the workshops. . . . Take, first, the much debated question of temperature. What is the most suitable temperature to aim at in our workshops? There is no generally accepted scale,

but probably most authorities would consider that a temperature of 60 to 65 degrees Fahrenheit is most suitable for workers engaged in fairly active work, whilst heavy manual workers should, as far as possible, have a distinctly lower one, say 50 to 60 degrees. In order that these temperature conditions may be observed, thermometers ought to be installed in all the workshops and read at regular intervals. If the readings are noted down in a book, it will probably be found that in some of the shops the temperatures frequently fall below or above the agreed scale, and in that case remedial measures should be taken. Also, if complaints are made by the workers records will show how far they are justifiable.

No less important than the temperature of a workshop is the state of its ventilation. Thanks largely to the investigations of Dr. Leonard Hill, we have in recent years come to recognize much more fully than in the past the effects of good ventilation on health and efficiency. Good ventilation consists, not so much in fresh air as in *moving* air. Stagnant air, however pure, is depressing and relaxing, and fails entirely to provide the stimulating effect of cool air in gentle motion. Hence the supervisor ought to do what he can to promote increased ventilation by opening windows and ventilators in workshops. A not inconsiderable number of workers prefer a stuffy atmosphere, and they enforce their desires on the others by shutting up the windows whenever they can. . . .

The more data you can collect and analyze, provided it is done intelligently, the greater will be your value in promoting the health and efficiency of the workers under your charge. Please do not think for a moment that you should neglect the more human and personal side of your work, or that you should try to carry it out on mathematical principles. All I wish to emphasize is that some sides of your multifarious duties do lend themselves to exact statistical treatment, and to suggest that you should develop this side whenever opportunity of doing so presents itself.

Bibliography on Hygiene of Industry

The *International Labour Review*, beginning with the May number, is publishing bibliographical notes on industrial hygiene that promise to be of great utility to everyone interested in industrial hygiene and allied subjects. They bring together papers and articles from foreign periodicals not available to average readers on industrial medical material under such main headings as hygiene and health in trades and occupations, hygiene and health of the workers, and industrial physiology and pathology.

¹Report of Lecture Conference, Balliol College, Oxford, England, September 15-20, 1922. The Industrial Welfare Society, 51 Palace Street, Westminster, S.W.1.

Human Factors in Accident

ACCIDENT rate in any particular industry is dependent alike on management, foreman, and worker. Where the authorities are indifferent to safety conditions accidents are high; where they make a concerted effort to prevent accident the rate decreases. The place of the foreman and the worker, the human factors in causing and preventing accident, is set forth by Lucian Chaney in U. S. Bureau of Labor Statistics Bulletin No. 298 entitled "Causes and Prevention of Accidents in the Iron and Steel Industry, 1910-1919," issued by the Government Printing Office, June, 1922.

The foreman can be of great value in accident prevention. Accident reduction bonuses offered to foreman spur them to greater care, and statistics show that where this plan is active accidents have decreased markedly. This superiority of the bonus group in accident reduction is due mainly to two causes,—(1) that the bonus group has a slightly superior physical condition and might be expected therefore to have lower severity rates; and (2) in the bonus plants there has existed since 1913 a bonus to the foreman for accident reduction.

The bonus system has the advantages of making the foreman realize that the company means business; it causes them to choose their men with an eye to physical fitness for the job; to instruct them in safety methods, and to associate a new man with an experienced worker. It also causes them, because of penalties imposed for undue absence of workers, to take an interest in the injured worker's quick return to the job. While this interest sometimes leads to a friendly relationship between foreman and worker again it leads to abuses such as returning an injured man too soon or making room for him at some other job at which he was not needed.

Though the foreman can, in large measure, reduce the accident rate especially when given the incentive of a bonus, a great portion of the safety of the worker rests on himself. Certain influences, such as youth, inexperience, unfavorable bodily conditions, illness, and fatigue increase minor accidents while the more serious accidents are usually caused by structural defect in the machinery. Statistics kept in a large steel plant from January to May, 1916, of the relation of accidents to the experience

of the worker indicate a rapid decline with increased experience. For those who had been employed six months or less the frequency rate was 37.1 cases per 1,000,000 hours' exposure; this dropped to 34.8 cases for those with six months' to one year's experience; the rate thereafter declined very rapidly and among those who had been employed more than fifteen years no accidents occurred during the period covered.

Other factors in increasing accident frequency were periods of business activity resulting in the speeding up of production and the taking on of

many new workers; geographic location making some cities more dependent on immigrant, non-English speaking labor; night work with insufficient lighting affording little protection; and the use of alcohol by some night workers just before coming on the job.

Records kept of production by hours in nine mills of a steel plant from September, 1912 to April, 1913, showed that contrary to the theory that fatigue should decrease output and increase accident, the reverse was found to be true, and in the hours when fatigue was usually considered to be strongest the greatest production was accomplished and the fewest accidents occurred.

Status of Working Women

THE 1920 census revealed the fact that one-fifth of all the women in the United States, or 8,549,511 are bread-winners. Questions which immediately arose were what percentage of these women are married and have small children dependent on their care, what percentage live at home, what percentage are single,—in other words what is the family status of these millions of women workers.

To determine on a small scale the family status of the working women of the country the Woman's Bureau took as typical Passaic, N. J., with its 10,000 women workers, four-fifths working outside the home.

Study showed that one-half of these women were or had been married; that nearly three-fourths of the married or once-married women breadwinners were mothers; that more than one-half of the mothers were working outside the home; and that of the 1,800 mothers working outside the home, over nine hundred had children under five years of age.

In answer to the question as to what care was provided for the children of these working mothers, the Woman's Bureau took one thousand addresses of women breadwinners living in Passaic who had small children. Agents were commissioned to follow up the addresses, establishing the identity of the occupants of the houses with the occupants living there at the time of the census enumeration.

The facts challenging attention in the results were: (1) That over one-fifth of the mothers worked at night, caring for the children in the intervals between indispensable rest taken during the day; (2) that near-

ly one-fifth left children with neighbors, landladies, or boarders; (3) that another fifth left children with mother's or father's relatives, about one-fourth of such relatives living outside the homes; (4) that over one-tenth of the mothers going out to work left the children at home to the care of husbands who were night workers, unemployed, or working at home; (5) that more than one-fifth left children virtually without care in the home. Eighty-two of these mothers, having children of school age, were assured that for part of the working-day at least the young were safe. The others had children below school age—some under 5—who had no care at all or only that given by children 14 years of age and under; (6) that but 25 mothers out of 522 left children in the care of paid custodians.

Turning to the single women breadwinners as pictured by the data assembled from the census schedules collected in Passaic in 1920, outlines of important features are impressively clear. The most cheerful phase of the picture is the large proportion—41 per cent—who were living in normal families where the fathers were breadwinners and the mothers were home custodians.

Nearly half of the single women breadwinners (women who were without male assistance in their families or women living independent of their families) apparently had sharply defined responsibilities for personal or family support.

Dr. Edward Martin has resigned as Pennsylvania state health commissioner after four years' service.

Interesting the Insured in His Health

A system of life, health, and accident insurance together with optional physical examinations has succeeded in interesting the employees of the Fred T. Ley & Co., Inc., of Springfield, Mass., in matters of personal health to their own physical betterment and the financial gain of the company.

The management inaugurated the scheme now in operation on the belief that if the man paid part of the expense they would be interested in seeing that they got some return for their money. On this principle the company offered to pay half the expense of the insurance system. The men are divided into three classes: those earning \$1,200 a year or less pay twenty-five cents a week for which they receive \$1,000 life insurance, ten dollars a week health and accident insurance for twenty-six weeks, and the physical examination services of the Life Extension Institute; those earning \$1,200 to \$2,500 a year pay fifty cents a week for which they receive \$2,000 life insurance, twenty dollars a week health and accident insurance for twenty-six weeks, and the privilege of periodic physical examination services; and those earning \$2,500 a year or more pay seventy-five cents a week for which they receive \$3,000 life insurance, thirty dollars a week health and accident insurance for twenty-six weeks, and the physical examination services of the Life Extension Institute. Additional insurance is allowed in recognition of length of service.

The entire scheme is handled through a mutual benefit association called the Loyale Club. The company had been getting a 20 per cent dividend on their group insurance for some years previous on an old system of group insurance. The management persuaded the insurance company to agree to increase this proportionally if their experience with the Fred T. Ley & Co., Inc. was better than their general average. They then told the Loyale Club that the dividends would be given to the club and a dividend of \$3,200 was a sufficient amount of money to induce the four hundred members of the club to try to earn it. This developed widespread interest in the annual physical examinations and the concerted effort to keep the whole force in the best physical condition.

The management further induced the insurance company to allow a committee of employees to decide when a person was entitled to com-

pensation. Insurance companies have found no way of compelling an employee to return to work, when they are satisfied he should, without antagonizing the rest of the men, but as soon as the men themselves were financially interested in having a man back at work they would not stand for any malingering.

The periodic physical examination is an important part of the scheme. While the results of the examinations are confidential between the individual and the medical examiner, the individuals seem to be perfectly willing to discuss their cases with the secretary of the club, and action is usually secured on the recommendations of the examining physician.

Anthrax Conference in London

A meeting of the International Advisory Committee on the Prevention of Anthrax, a committee made up of delegates from England, India, Australia, Italy, Sweden, Germany, France, Union of South Africa, and Belgium met in London on December 5. This body, which reports to the International Labor Office of the League of Nations, has for its principal object the study of methods of disinfecting wool, hides, hair, and similar products so as to protect workmen from the danger of infection with anthrax.

England has been particularly active in taking steps to eliminate the danger of infection of workmen in wool-handling establishments, and the committee agreed that for wool the English method seems to be effective.

The best figures available show that in the eight years up to and including 1917 there were only 222 deaths of humans from anthrax in the United States. Of these only about twenty-five, or 30 per cent, were of industrial workers. About 20 per cent of the deaths during this period were of farmers who became infected in most cases as a result of skinning animals that died on the farms.

Now and then stories have been published of cases of anthrax that have been contracted as a result of infected shaving brushes made of horse hair. Brush manufacturers in this country some time ago agreed to use no more horse hair in the manufacture of brushes of this kind.

The United States imports ten times more crude opium than Germany, France, and Italy together. It is estimated there are 5,000,000 drug addicts in the country today.

Industrial Standardization During 1922

The year 1922 saw greater activity in industrial standardization than any other year in the history of American industry.

One of the most far-reaching accomplishments of the year was the organization, on a working basis, of the Federal Specifications Board which develops and approves the specifications under which all government purchases are made.

The organization of Secretary Hoover's Division of Simplified Practice and its entrance into industrial field has had a highly stimulating effect on the industrial standardization movement. The distinction between the basis for this work and that of the American Engineering Standards Committee lies in the fact that the Division of Simplified Practice devotes itself particularly to that part of the field in which the decisions must be made on a non-technical basis.

More than 120 standardization undertakings now have an official status before the American Engineering Standards Committee, 43 of them having been initiated within the last year. Of the twenty-eight industrial standards developed and approved by the American Engineering Standards Committee since its organization in 1918, thirteen were approved within the past year. The efforts to develop national safety codes, which have been under way for a number of years, began for the first time to bear fruit. The following six safety codes, pointing the way to the elimination of the most serious classes of industrial accidents, were approved during the year: safety code for the use, care, and protection of abrasive wheels; safety code for the protection of industrial workers in foundries; safety code for power presses, foot and hand presses; national electrical safety code; safety code for the protection of heads and eyes of industrial workers. Specifications for the testing and use of permissible explosives have also been developed.

There are now national standardization bodies in fifteen foreign countries and a report recently received by the American Engineering Standards Committee indicates that plans are under way for the development of such work in each of the South American republics. The most recent of the national bodies is the Australian Engineering Standards Association, which held its first meeting on November 3.

Recent Compensation Decisions

By DOROTHY KETCHAM, DIRECTOR, SOCIAL SERVICE, UNIVERSITY HOSPITAL, ANN ARBOR, MICH.

THE Industrial Accident Board of Massachusetts found that a deceased employee of the American Woolen Company received an injury arising out of and in the course of his employment. This injury was caused by the employee straining himself, while throwing cloth over what is known as "the perch," bringing on an umbilical hernia which became strangulated. A general condition of sepsis resulted therefrom which caused his death.

In the opinion of the Supreme Judicial Court of Massachusetts rendered November 29, 1922, "there was evidence that the employee on his return from work on December 27, complained of pain and stated that while lifting a piece of cloth 'it slipped and got away from him, that he felt something give in his abdomen, felt a sudden pain and had a lot of pain.' It was found that he had a dilated umbilical hernia. There was medical testimony tending to show that such hernias are caused by 'sudden lifting, sudden wrenching and falling,' that lifting the cloth in the manner described would be sufficient cause for the hernia; and that the employee's death on January 5, 1922, resulted from the hernia. On this evidence the board was fully warranted in finding that the fatal injury to the employee arose out of and in the course of his employment."—*Butler's Case 137 N. E. 175.*

THE Supreme Court of Michigan December 5, 1922, held that the conclusion of the Department of Labor and Industry that an employee's hernia was produced by an unusual strain when he was in an unusual position attempting to lift a heavy pulley and put on a heavy belt, which work required the help of another, was the result of an accident within the Workmen's Compensation Law and was justified by the evidence.—*Fibley v. Michigan Milling Company 190 N.W. 654.*

THE claimant's carpenter received on July 31, 1918, an injury on his right forearm through contact with a rusty nail. The injury became serious and later resulted in embarrassed heart action, known as endocarditis, which finally caused his death.

The Supreme Court of Pennsylvania

October 20, 1922, passed on the sufficiency of evidence to sustain the compensation award. "An examination of the testimony and especially that of the doctors, shows that the deceased, previous to the blood infection was a strong, healthy man, working regularly at his trade, and at no time before the accident had experienced symptoms of embarrassed heart action. The physicians who examined or treated him testified that the endocarditis from which he suffered was the result of the injury referred to. Without referring to the medical testimony in detail, we find it ample to sustain the finding."—*Guthrie v. Thomson-Starrett Company 118 Atl. 735.*

WHERE an employee accidentally suffered a slight bruise upon his shin, which was not sufficient of itself to cause disability, but which, three days later, owing to a diseased condition of his blood, broke open and formed an ulcer at the center of the bruise, it has been held by the Supreme Court of Nebraska, November 13, 1922, that the accident was the proximate cause of the disability which resulted in the existence of the ulcer, and further that such disability was caused by an accident arising out of the employment.

The evidence, according to the court, "establishes the fact that, at the time of the accident, appellee was suffering from syphilis, and a year later the disease was found to be in the tertiary stage, being localized at the point of injury to the leg, up to the time of which occurrence it had remained dormant, that an ulcer formed and had not entirely healed a year after the accident and appellee's disability arises from the ulcer in his leg. The district court allowed claimant for full disability up to the date of the decree and until such time as it is shown disability has ceased, and the employer has appealed."

The question for determination by the court was, what is the proximate cause of appellee's condition, the accidental injury to the leg or the disease? The appellant claimed that the condition was due solely to the disease and did not therefore arise out of the employment.

The court states, "We think the inference to be drawn from the testimony is that the primal cause of ap-

pellee's disability was the accident, aggravated by the disease from which he suffered. . . . The evidence does not suggest any cause for the existence of the ulcer at the precise place of the injury and so soon thereafter, other than the accident which occurred in the course of the employment. While it is true that the disease caused the wound to ulcerate the evidence is most persuasive that without the wound there would have been no ulceration. We conclude that the accident was at least in part the proximate cause of appellee's disability and the fact that his recovery was delayed by the existence of the disease will not prevent a full recovery. . . . It is generally held that the fact that a pre-existing disease contributed to the disability does not affect the right to compensation, provided the accident produces physical conditions which in connection with the disease bring about the disability. . . . The test to be applied is, did the employment develop the injury in a material degree? . . . In the case at bar it was not necessary, if indeed it was possible for appellee to show that a disease of the blood had been aggravated by a trauma, it was sufficient to show the trauma and resulting disability, though the latter was contributed to by the disease. . . .

We think the disability for which compensation was awarded arose out of and in the course of the employment, and that the decree below is right, and it is affirmed."—*F. H. Gilcrest Lumber Co. v. Rengler 190 N.W. 678.*

THE following decision of the Supreme Court of Michigan rendered November 2, 1922, is of importance to vocational officers and those associated with the scheme for industrial rehabilitation, in that it endorses lump sum payments by the industrial board in certain exceptional cases "where circumstances create a necessity therefore."

A lump sum payment may be awarded for compensable disability where circumstances create a necessity therefore as provided by the board's rules of procedure, though there is no agreement and no application for such payment.—*Thayer v. Berkey & Gay Furniture Co. 190 N.W. 231.*

A JAR or misstep which causes hemorrhage resulting in the loss of the eye is held an "accidental personal injury" within the compensation law.—*Winona Oil Company v. Smithson 209 Pac. 398.*

INSTITUTIONAL HEALTH

The Health Problems of Schools and Colleges, Hotels, Summer Camps, Children's Homes and Homes for Dependents

Modern Trends in the Health Care of Children*

Correct the Subnormal Standards That Have Produced Our Subnormal Children

BY HOMER FOLKS, PRESIDENT, NATIONAL CONFERENCE OF SOCIAL WORK, NEW YORK CITY.

THE first modern trend in children's work, using "modern" to mean the last ten or fifteen years, is a rather general recognition of the fact that social conditions change and, therefore, children's work must change or else become obsolete and out of touch, unadjusted to the community.

We used to think instinctively that poverty, distress, crime, neglect and orphanage were part of the natural order of things, like the currents of the ocean, the movement of the heavenly bodies, and the coming and going of winter and summer, and that every year brought not exactly a fixed, but a regular proportion of trouble and distress and poverty which had to be cared for, and all we had to do was elaborate our social machinery, agencies, and institutions to take care of that particular amount which existed in our community.

Now we all have come to see that the conditions and facts which produce orphanage, neglect, distress, and poverty are part of that complicated series of human affairs which we call civilization, that they are man-made, that man can change them, and that man is changing them. Perhaps the most striking instance of such change in our own field of child care is to be found in the cause of the organization of the very first child caring institution in America. It was established many years ago in New Orleans, an orphanage to take care of the children left orphans by an Indian massacre in Natchez, Miss. In-

dian massacres have not contributed largely to the population of orphanages for a good while, but that particular institution, organized to meet a particular need at a particular time, continued to exist for about one hundred fifty years. We have to change in the long run, as conditions change, but there are three different ways of doing it. One is to stand pat and await the coming of the big stick or something else that obliges us to change. Another is to keep our ears to the ground and change just as much as will keep us even with the current of popular change. A third, studies the trend and direction of social movements, which keeps one step ahead, which exercises some leadership and doesn't always merely follow.

Prevention That Prevents

The second trend is that children's work is a part of social work in general, that we can not think of it nor deal with it separately from other kinds of social work—that when we try to isolate it and deal with it by itself, we immediately begin to go wrong. An instance of that is workmen's compensation, which is something that seems in quite a different field from children, *i. e.*, the field of labor legislation.

Twenty-five years ago a city district committee of a charity organization nearly always had before it the case of the children and the wife whose husband was injured in an accident. That was a substantial demand on private charity. It is perfectly obvious now, of course, that the change in

that respect, the introduction of a modern workmen's compensation act, makes a vast change in the number of children who have to receive charity either in their homes or elsewhere.

The third change in the modern trend of children's work is that prevention is beginning to prevent! We are now beginning to get the benefit of the things which were undertaken in a preventive line fifteen and twenty years ago. It was just about twenty years ago that the movement for the prevention of tuberculosis was begun. I wonder if any of us can begin to understand the many ramifications of what has happened about tuberculosis in the last twenty years in our particular field of children's work. Unless we stop to think we do not realize that tuberculosis, which twenty years ago was the largest cause of death and which had taken away the parents of half of the children in our orphanages, has been reduced one-half.

What an enormous change that has made in the scope and kind of the children's work which we have to carry on! There is less demand for home relief where the father is sick with tuberculosis. The volume is reduced just one-half. The demand for widows' pensions, or whatever kind of relief is to be given widows, is similarly cut in half so far as tuberculosis is concerned. The number of children to be placed in institutions is greatly reduced and, another factor usually overlooked, the amount of juvenile delinquency is greatly reduced by the prevention of tuberculosis.

*Read before the Ohio Welfare Conference, Columbus, O., November 1, 1922.

One of the first studies the author made in social work was in juvenile reformatories as to how many had lost one or both parents, and it was plain then, as it has been ever since, that the loss of one parent is the factor which in many cases leads to delinquency.

The control of typhoid fever has a similar bearing. Every step taken by the health authorities—by the state and by the locality—in reducing causes of death is a step in the reduction of the work of the children's orphanages, of child adoption societies, of home finding societies and juvenile reformatories.

Benefits of Social Activity

We are beginning to get the benefit of prevention. The census of our juvenile reformatories in the state of New York is very much less than it was a few years ago. Some of them have closed substantial parts of their institutions; one or more are thinking of discontinuing the work entirely; one of our state reformatories for men has been closed, and all of them show a much reduced census.

Let us consider each of the four groups with which we deal in children's work and see how the volume and kind of work has been changed and is changing and is going to change still more by other forms of social welfare activity.

We have considered, first, the destitute children who are simply poor, whose parents cannot take care of them. Prevention of tuberculosis and other health work, workmen's compensation and, above all, the spread of widows' pensions and mothers' allowances has almost removed from consideration the subject of destitute children as related to other than their own home. There are many children to be provided for, but the White House Conference on Dependent Children in 1909 adopted the principle that children should never be removed from their home because of poverty alone. We are coming pretty close to the realization of that principle in actual practice.

As to neglected children, the second large group, there are two conflicting currents in different directions in regard to the volume. First, perhaps most of us at times, when we have read of some terrible case of cruelty and the rescue of some child from terrible maltreatment continued over a long time, have been very much distressed about it, and then we have seen the statistics of the numbers of children dealt with by societies and organizations, and conclude we have ob-

tained a somewhat erroneous impression of the volume of situations of that kind. As a matter of fact, only a very small percentage of the large number of children cared for by child caring organizations came from extreme instances of cruelty.

A foreign representative once studying child welfare work in New York had seen the pictures and reports of our humane society, of children beaten. Then he read how many thousand children they dealt with in the year. He said "Is it, then, that you have so many cruelties in America?" If he had read closely, he would have seen that about 95 per cent of those children were lost children, picked up and returned to their parents, and children dealt with for slight circumstances.

But, when we come to the actual neglect of children, we find that there are two main causes, two groups of cases. The first is that neglect which is the result of intemperance—long—continued intemperance. The second is that which is due to mental deficiency, a real mental lack or the beginning of a mental disease on the part of the parent. And, we are really making a good deal of progress in those two directions. The Eighteenth Amendment and our local laws are very greatly reducing the actual use of liquor by the bulk of the people, which must result in a marked reduction in the number of cases of that extreme neglect of children which leads to their removal from their homes.

Through mental clinics and the examination of school children, we are finding our cases of mental disorder and mental deficiency at an earlier period and, instead of removing them from their homes after they have become delinquent or for other causes, we may look forward to finding them at an earlier date, caring for them as they should be cared for, and then they themselves will not be giving birth later to children whom they will subsequently neglect.

On the other hand, we must recognize this fact: We have never discovered in this country all the cases of neglect of children. We have only hit on one here or there when some peculiar fact or circumstance brought it to light. With all our humane societies, we have never sought them and discovered them, and whenever a new county agency really seriously follows up all the cases, we have found always a much larger number of instances than we had before thought existed.

So, we have an actually diminish-

ing volume of neglect, but an increasing proportion which comes to our attention and is dealt with, and we deal with it in a somewhat wiser way. One used to read of this or that terrible case of neglect of a child, look at the picture of the child and read the account of the trial, and then at the end, with what a sigh of relief and satisfaction read that the child was taken away from those parents and committed to some institution. That is where the average citizen stopped. Now we are looking it up a little to see how many of those, going in at the front door in some private home or institution, before long go out of the back door and back into that very home, that very set of circumstances from which he had been rescued not so very long before. It certainly has been true in our state that the great volume of children rescued from neglect and cruelty have been supported for a time at public expense, the parents being relieved of that burden, and then the great majority have found their way back to those very same homes and parents when they were able to work and turn their earnings in to those same parents. That is not a very effective way of dealing with neglect. Now we are finding that a great many of those cases were not so bad really as we thought they were, and that it is possible by probation, by home visitation, by close supervision, by advice, sometimes by material help so to change circumstances in those homes that the children need not be taken away at all. That fact bears on the diminution of children who must be cared for away from their homes.

Delinquency Is Reduced

It certainly is true there are many, many factors tending to reduce child delinquency. We have but half as many orphans, and that is a great factor. We have more adequate widows' relief. We thought in New York City a very few years ago when we were spending about three or four hundred thousand dollars in widows' relief that we were doing a good job, but we now consider that the reduction in our juvenile delinquency is not unrelated to the fact that we are now spending three and a half million dollars a year in the City of New York to assist widows in the care of their children in their own homes.

There is also a distinctly new trend in regard to crippled children, those most unfortunate little creatures, and this new trend is that they should be taken care of, cured, if possible, or their conditions improved.

The first hospital for crippled children was established by the father of Theodore Roosevelt, as one may read in the book by his sister, Mrs. Robinson. Fifty years ago we had two or three hospitals for crippled children and they were equal to the demand. But, that was just the trouble. Neither the crippled children nor their parents were in the way of demanding. We do not stop to think how far above the workingman's family these agencies are and how little he knows how to go about it, and the mere fact he does not know what to do means he does nothing in a great many cases.

Two things have sunk in very deeply, that the hospitals, even where equal to the demand, did not mean that all crippled children were being cured. We had an epidemic of infantile paralysis and after that was over, we established a series of clinics all over the state with the best physicians and surgeons and nurses we could get. To those clinics there came large numbers of crippled children, and from one-half to a one-third of those children were crippled not in the recent epidemic, but in an earlier epidemic, but had gone unnoticed and uncared for all those years.

Mental Field Complicated

What is the modern trend in regard to the care of mentally defective children? Eight or ten years ago that could have been answered very simply by mathematics, by an equation. We thought we knew about how many feeble-minded children there were. We reckoned how many we had beds for in our custodial institutions and how many we were building a year and we could figure by mathematics our exact needs—so much a year for so long a time would bring us to the time when we would have them all in the institutions provided. It was a question of bricks and mortar. Whatever the trend of children's work for the mentally deficient, it certainly is not as simple as that now. We all recognize it is a great deal more complicated, difficult, diversified and complex.

To enumerate very sketchily, what are some of the trends of the care of the mentally deficient children? The first one is a very interesting instance of the interplay of these different social factors in considering one with the other. You know about the Shepard-Towner bill. It is doubtful if the advocates of that bill had any idea they were dealing with mental hygiene, but they were, because a definite and appreciable proportion of

mental disturbance and mental defect is based upon complications and accidents attending childbirth, and really adequate maternal care would reduce the mental disturbance.

The pre-school age of children, too, is one to which we have not connected any thought of mental deficiency or mental hygiene, and yet, as somebody has said, if children in those early years are not learning to read, they are certainly learning the A-B-C of human life and if they get wrong impressions, prejudices, wrong emotional reactions at that time, things are started that may be very serious later on. In Boston great benefit resulted from the establishment of habit clinics, for the purpose of straightening out bad habits which get started, and which left unchecked would mean a more pronounced mental disturbance or mental departure from the normal.

The tuberculosis authorities have been telling us for a long time, that all of us have a little tuberculosis all the time. We may apply that to a larger field and wonder if we are not a little bit crazy at times, more sometimes than others, and some of us more than others, perhaps. We are all the least bit feeble-minded. Again, some of us quite a lot, and some not so much, but most of us depart sufficiently from a real mental poise, from a sound emotional life, to affect our usefulness as citizens and disturb our happiness as individuals. The mental hygiene which can be taught in those early years, the sound teaching, the correction of minor departures in early life, will make the next generation more sane, more sound, and better balanced, make better citizens and better parents, and will increase the sum total of human happiness and well being.

Then we come to the schools, public and others. The one public governmental agency which practically reaches all the children is our schools. The establishment of the universal public school system was the most radical, far reaching, revolutionary thing that ever happened in the history of any country, and certain it is around the public school system utilizing the opportunity to deal with all of the children, that our great opportunities in mental hygiene lie. When we set about really finding all the children in schools who are different and odd and peculiar, and secure instruction and care more suited to their particular needs, and when we make their needs the occasion to bring the parents into the school and talk with them about the origin and

the evidences of this trouble at home and how it may be corrected, and when we have the teachers going into the homes, then we shall have taken steps that will serve enormously in reducing the volume of mental disturbance which is now such a drain on the economic efficiency of the country.

Without tracing through the different things affecting the mental hygiene of children, it is merely suggested that there, again, is a piece of general work, attending to all the children in the community, of the greatest importance in our specialized problem of dealing with these destitute, neglected, and delinquent children. And dealing with these particular classes of children, whether we like it or not, is but another means of reducing the general problem of child caring institutions.

All that gross total of taking away children from their homes is a diminishing factor in social welfare. We need not disagree as much now about the best way to care for the child outside of the home for there is not going to be as much to do. Instead a much greater volume of work will be undertaken for the supervision of all the children in the community.

Specific Lines of Attack

We have just recently seen that if bad teeth diminish the effectiveness of an army, they diminish the effectiveness of the army at home in civilian clothes just as much. But, in view of the impossibility of providing dentists enough to fill all the decayed teeth now harbored in neglected mouths, the only real remedy is to begin earlier with services in dental hygiene.

The war likewise is responsible for the present improved program for the treatment of undernourished children. At first the remedy was sought through providing school lunches. Then it was found that the homes of the children disclosed many things beside insufficient or unsuitable food that have to do with the habits and health of the child, and that handling malnutrition involves dealing with the entire health of the child. Just as we began to think we had come to an understanding of the subject of malnutrition, Dr. Fifebacker of New York City revolutionized the matter by stating the subject was not one of correcting malnutrition, but the prevention of malnutrition. Thus the subject was brought back to a basis of education—the public health education of the child in the school, and, through the school, the education of

the parents. That really is the great hope of the future.

It is a comprehensive program—dealing with this subnormal standard of living—that can be approached in three ways: (1) It can be regarded as a matter of relief, which is the hardest way to get at it. (2) It can be dealt with as a matter of educa-

tion, which is much easier. (3) Or, it can be handled as a matter of health, which is still easier, as everybody believes in health. By combining health with education—health education—we may hope finally to discover a short and really effectual way of remedying the prevalent low standards of living.

New Public Baths for Harlem

NEW YORK City will expend \$170,000 on the new public bathhouse to be erected soon at 134th street between Fifth and Lenox avenues announces Julius Miller, president of Manhattan borough. Though the baths are in the center of the negro district they will be open to both races.

The building will contain 170 showers, a three story gymnasium, and roof garden. The interior will be finished with materials immune from vapors arising from showers. A control of water temperature will be instituted in the boiler rooms so that it will be impossible for any bather to suffer injury by inadvertently turning on the hot instead of cold water.

Arrangement has also been made to shut off the water for each shower from the boiler room, this to prevent bathers from lingering and keeping others waiting. Devices to insure against theft are also being worked out according to Mr. Miller.

The building from the street level will be four stories. Office and wait-

ing rooms will occupy the front of the first floor, the rear of which will be divided into two sections, one for men and one for women, each equipped with twenty-nine showers and three bathtubs. Forty-four showers each for the men's and women's sections will occupy the entire second floor.

Two locker rooms having nine showers each with space for clothing lockers will occupy the front of the third floor. The rear part of the floor will be the gymnasium 53x64 feet with a twenty-five foot ceiling, extending through the fourth floor. At the level of the fourth floor an indoor track will be built in the form of a balcony around the gymnasium, the width of the track to be seven feet and the distance around it 175 feet.

Locker rooms equipped with three showers will be installed in the front of the fourth floor.

The playground on the roof will be used as a community center. It will have an open air area of 5,200 square feet.

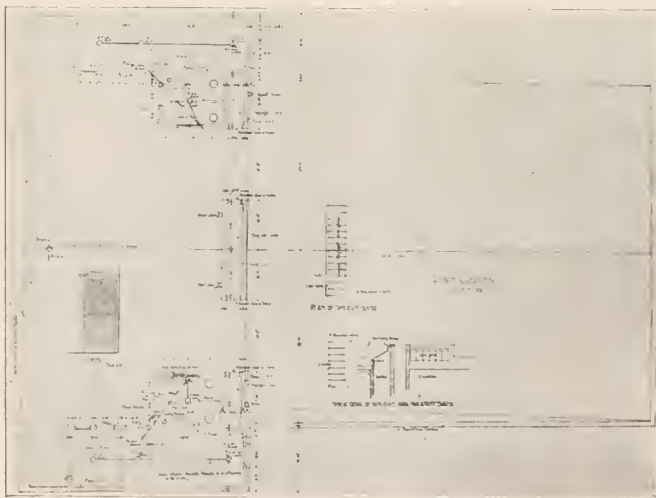
The exterior of the building will be of brick with granite base and limestone trimmings. The interior walls of the upper part of the building will be of light colored pressed brick, the ceilings of Guastovine tile. Floors of entrance lobby, shower room aisles, and lavatories will be of white hexagonal tile while the roof will be finished in red promenade brick. Floors of showers and dressing compartments, and locker rooms are to be of cement and floors of the gymnasium and running track of wood. Partitions for shower and dressing compartments will be of white Italian marble.

A Standard for Condensed Milk

In the Milk and Dairies (Amendment) Bill, recently given its second reading in the House of Commons, effort is made to establish the standard of food value. Dr. W. J. Howarth quoted the impression that condensed milk now imported from abroad is not on the whole of such good quality as prior to the war. Analysis recently made by the city analyst shows that the percentage of fat in thirteen samples of sweetened whole-milk varied from 6.45 to 9.35; in two unsweetened whole-milk samples the corresponding figures were 7.7 and 8.2, these figures comparing unfavorably with tests made in 1911. Dr. Howarth's calculations indicate that the amount of milk fat in ounces purchasable by a unit of one hundred pence in the sweetened whole-milk supplied in tins varied between the wide limits of 9.02 and 16.42, a difference which can scarcely be held to result from differences in commercial methods in preparation and distribution.

The solution proposed is to require a standard of 9 per cent of milk fat to which manufacturers should work. One part of such condensed milk diluted with two parts of water would then give a fluid milk complying with the present milk-fat standard of raw milk. In common with other health officers, Dr. Howarth also asks that requirement be made that the label of skim milk should bear conspicuous display in contrasting colors of the statement that such milk is unfit for the food of infants.

Compulsory health insurance of all children attending the primary schools was ordered by a recent decree of the council of the Canton of Valais, Switzerland. The state will meet a part of the cost.



Roof garden of proposed new \$170,000 baths to be built at 35 West 134th Street, New York City.

An Ideal Out-Patient Service in Pediatrics

THE Section on Pediatrics of the Associated Out-Patient Clinics of New York, including a representative of the professional staff of each of thirty-seven pediatric clinics of the city, has, through the executive committee¹, been actively engaged in working out plans for aiding and improving out-patient service in pediatrics. The Section agreed that the professional staffs and governing authorities of the pediatric clinics would be stimulated by the existence of an approved standard and by comparison of existing clinics with this standard. As a first step, requirements for an out-patient service in pediatrics were formulated as printed below.

These were submitted in their first draft to various interested individuals for criticism and, after revision according to suggestions received, were finally adopted by the Section and by the general committee of the Associated Out-Patient Clinics. It was felt that in order to provide the maximum incentive to improvement, the standard should be set high. The outline herewith is, therefore, more or less ideal, but is believed to be capable of practical realization. The Associated Out-Patient Clinics, and in particular the committee responsible for drawing up these standards, invite the criticism and suggestion of all interested in out-patient service for children.

During the summer of 1922 the member clinics were visited, and their organization and methods compared with these standards. The survey showed that several clinics in New York City closely approximate the standards set by the Section; that others are conducting pediatric out-patient service of a superior grade; but that many clinics have unsolved problems of organization and management and that there are frequent failures to meet essential requirements. Both medical and administrative authorities of the institutions visited were usually much interested in their rating by these standards and many plans for improving service in order to meet the requirements are already under way.

Funds have also been pledged to the Associated Out-Patient Clinics by the Committee on Dispensary Devel-

opment of the United Hospital Fund to assist one or two selected clinics to improve their service so as to demonstrate, as nearly as possible, the working of an ideal pediatric clinic. It is hoped that some demonstration of this type may be under way in the near future.

The standards indicated set forth the principles of organization and procedure, the facilities and the equipment necessary for the satisfactory service of a pediatric out-patient department in the diagnosis and treatment of patients. It is felt that a pediatric clinic should also assume certain educational responsibilities: education in the prevention of disease through contact with the parents of patients (utilizing the waiting period for this purpose when possible); the provision of experience and training for practising physicians as well as for undergraduate and graduate students: organization for research into various pediatric problems; and the periodic measurement of the results of the clinic management of patients, to point the way towards improved methods.

Various general subjects—such as administration, organization, admission, fees, etc.—have not been considered in the formulation of these standards, as recommendations on these matters are formulated by the central executive committee of the Associated Out-Patient Clinics.

1. MEDICAL ORGANIZATION.

(A) It is desirable that there be a ward service in connection with every dispensary. Independent dispensaries should have close affiliation with some hospital, with interlocking staffs. (The standards herein outlined presuppose that there is a ward service in direct connection with the clinics.)

(B) The hospital and out-patient staff should constitute one organization. Every member of the staff should have some duties and responsibilities in the out-patient department. After a proper period of probation every member of the staff should have some ward duties and privileges. The entire staff should be encouraged to follow its cases admitted to the wards.

(C) The staff (1) should be assigned definite hours for attendance in the out-patient department. (2) The director and the senior staff should attend the out-patient department at least once a week at specified hours, for consultation. (3) A record of attendance should be kept and analyzed periodically. No physician should hold an appointment whose record of attendance is not satisfactory.

(D) The chief of clinic (1) should be of rank corresponding at least to

that of an assistant attending physician to the hospital. He should be responsible for maintaining the medical standards and should be in personal charge of the clinic work. He should assign the staff to cover the various sessions of the clinic and the special clinics. He should supervise diagnosis and treatment advised or instituted by juniors, and should submit necessary reports to the director of the service. (2) The chief of clinic should be present during the entire clinic hours of the day when he is on duty. (3) In large clinics some of the duties of the chief of clinic may be delegated to other members of the staff.

(E) The interns on service in the wards (1) should be definitely assigned to regular duties in the out-patient department. (2) To make out-patient as well as in-patient service possible, the number of interns on duty should be increased, if necessary.

(F) The medical staff (1) should be relieved as far as possible of all duties not directly concerned with the diagnosis and treatment of patients. (2) Trained assistance for performing the executive, social service, nursing, clerical and technical functions should be provided.

(G) Staff conference for the discussion of both ward and dispensary cases should be held at least once a month which all members of the pediatric department should be required to attend.

II. SOCIAL SERVICE.

The Social Service Section of the Associated Out-Patient Clinics has formulated general standards of organization and function of social service in clinics, only certain special points are included here.

(A) At least one social worker should be assigned to the pediatric clinic.

(B) The medical social worker should be invited to attend the staff conference.

(C) There should be provision for privacy for social service worker's interviews with patients.

III. SPACE, EQUIPMENT AND FACILITIES.

(A) There should be adequate rooms for examination and for teaching purposes, where teaching is done at clinic.

(B) There should be adequate cubicles for isolating contagious diseases.

(C) The services of (1) a modern laboratory and x-ray plant should be available. (2) There should be proper laboratory facilities for the immediate examination of and report on specimens of blood and urine, when necessary.

(D) Equipment should consist of: (1) Proper ventilation, plumbing and light; (2) walls and floors easily washed; (3) drinking water with paper cups; (4) facilities for heating bottles; (5) proper desk and chairs; (6) proper scales for infants and children; (7) measuring instruments; (8)

¹Executive Committee is constituted as follows: Roger H. Bennett, M.D., chairman; William P. St. Lawrence, M.D., vice-chairman; Drs. Murray Bass, Stafford McLean, Marshall C. Pease, Jr., Mark S. Reuben, Frank Howard Richardson, Louis C. Schroeder, and Charles Hendee Smith, Gertrude E. Sturges, M.D., Executive Secretary.

proper examining table; (9) proper light for nose, ear, throat and head work; (10) "reference blanks" for patients referred to other departments of the institution or to other institutions; (11) proper surgical instruments; (12) printed diet lists and printed hygienic instructions for children over two years; (13) educational material to supplement the verbal instruction for special diseases; (14) cover near entrance for perambulators is desirable.

IV. ADMISSION AND DISTRIBUTION OF PATIENTS.

(A) At least twenty minutes should be spent on the history examination and treatment of each new patient and as much time on old patients as the individual case may demand.

(B) A competent assistant, preferably paid, whose chief duty should be the segregation and isolation of contagious cases, should be present during all clinic hours.

(C) The patient should be treated by the same physician continuously except when referred to a special class.

(D) All cases should be admitted first to the general pediatric clinic for diagnosis. Suitable cases should be referred to special classes.

(E) It is desirable that the upper age limit for attendance at the pediatric clinic should be puberty with a maximum of fourteen years.

(F) As far as possible, visits should be made according to prearranged appointment. The details of organization will need to be modified to meet the possibilities of individual clinics.

V. STANDARDS FOR PHYSICAL EXAMINATION.

(A) Each child should have a complete physical examination on admission, younger children completely stripped, older children stripped to the waist (or completely if indicated), and receive such examination as is necessary on subsequent visits.

(B) All doubtful or unusual cases should be seen by the chief of clinic or consulting physician.

VI. STANDARD FOR TREATMENT.

(A) Where no infant milk station is maintained at the clinic, appropriate cooperation should be maintained with a department of health station.

(B) The clinic should cooperate with the schools, social agencies, day nurseries, etc., by the diagnosis and treatment of referred cases. It is desirable that cases should be referred only from a specified district mutually agreed upon and that, so far as possible, cases should be referred by appointment in such numbers and at such hours as may be of greatest mutual benefit.

(C) Close cooperation should be maintained with the agencies providing convalescent and country care.

(D) There should be facilities for consultation in all required specialties, including mental hygiene and dentistry.

(E) Special classes (1) for group treatment of cardiac disease, vaginitis, syphilis, malnutrition, asthma, etc.,

are highly desirable. When it is not feasible to form separate classes, equivalent care should be provided through the special management of cases or by reference to appropriate institutions. (2) It is desirable to group patients in classes according to age.

(F) The patient should receive written or printed instruction in addition to verbal directions, (instruction lists, diet lists, etc.)

(G) The amount of medicine dispensed should be sufficient to obviate the return of patients for medicine only.

(H) In case facilities for follow-up are limited, the chief of clinic should be responsible for designating the type of cases to be followed up.

VII. CONTENTS OF RECORDS.

(A) Ordinary identifying data and date of each clinic visit.

(B) Social data including: (1) Birthplace, (2) descent, (3) size and constitution of family, (4) income; and (5) family contacts with charitable and health agencies.

(C) Family history, including (1) history of epileptics or mental defectives; (2) mentality of parents; (3) exposure to tuberculosis or syphilis; and (4) chronological history of pregnancies.

(D) Birth history, including: (1) Period of gestation, (2) type of labor, (3) place of delivery, (4) birth weight; and (5) diseases and injuries of the new born.

(E) How long nursed and technic of nursing or, if artificially fed, detailed feeding history, arranged chronologically, and varying with age of child.

(F) Development history including date of sitting up, walking, teething and talking.

(G) Habits.

(H) Previous illness.

(I) Accidents and operations.

(J) History of present illness: (1) Duration and onset; (2) chief complaint; and (3) previous medical care.

(K) Physical examination:

(1) Measurements: Height; weight; head; chest; fontanel. Expected weight for age and height.

(2) General condition: Nutrition; skin.

(3) Deformities: Posture; head; thorax; spine; feet.

(4) Lymph nodes.

(5) Nervous system: Mentality; reflexes.

(6) Heart.

(7) Lungs.

(8) Abdomen: Liver; spleen; hernia.

(9) Genitals.

(10) Eyes.

(11) Ears.

(12) Nose—breathing.

(13) Mouth—teeth.

(14) Throat—tonsils.

(L) Diagnosis.—Tentative diagnosis should be recorded at the first visit and revised as the findings warrant.

(M) Treatment.—Treatment advised or instituted should be noted. Copy of instructions and advice, including details as to feeding and medication, should appear on the chart.

(N) Progress notes. — Progress

notes should be made at every subsequent visit.

(O) Date for return visit.—The date when physician wishes the patient to return should be noted at every visit.

(P) Laboratory notes.—The record of all laboratory work, x-ray and other special tests done for the patient should be incorporated with the medical history.

(Q) Record of medical social service.—At least a summary of all work done and information obtained by the medical social worker should be incorporated with the medical record.

(R) Signature.—All entries should be signed by the physician or other person making examination or report.

(S) The records of the in-patient and the out-patient should be unified as completely as possible.

VIII. STANDARD NOMENCLATURE.

Each pediatric service should formulate a standard nomenclature for use in the entire institution.

Public Health in Denmark

In Danish history of public health the year of 1921 was a record year, the rate of mortality being only 11 per 1,000. Out of a population of nearly 3,300,000 only 36,000 died. On the whole, public health in Denmark is standing very high. Danish statisticians boast that no other country has shown so low a death rate as that observed in Denmark last year.

The *Journal* of the American Statistical Society, however, claims an average of only 9 to 10 per 1,000 for New Zealand, a rate that in the age distribution standard of Sweden would average about 12 per 1,000.

Infant mortality in both Denmark and New Zealand is very low. Climate, virility of the race, and the comparative absence of large industrial populations are favorable factors in both countries.

In 1921, Denmark registered a considerable natural increase of population, births exceeding deaths by about 12 per 1,000.

Colonel Munson is working with Governor General Wood to bring about the passage of a bill laying the foundation for a countrywide system of hospitals in the Philippines. Of the forty-eight Provinces visited, twenty-eight lack hospitals, and in thirty-two nothing is done to preserve public health.

Dr. de Jesus, director of the Philippine health service, told members of the chamber that two-thirds of the total deaths in the island were due to preventable causes. Half the economic loss, he said, could be saved through installation of a modest hospital system.

Health Provisions of Antioch College

Balanced Diet and Exercise Keep Students in Good Trim

By GEORGE P. PAUL, M.D., DIRECTOR, DEPARTMENT OF HYGIENE, ANTIOCH COLLEGE, YELLOW SPRINGS, OHIO.

ANTIOCH College is undertaking to put into practice educational purposes and policies very generally approved in theory but seldom adopted in practice because of tremendous force of habit of doing things as they have been done. The Antioch program is an endeavor to prepare the students to meet the most universal and important experiences and issues in life; to give them the kind of knowledge most necessary to effective living in our present complicated economic system, and upon which they may wisely base important decisions materially affecting their well-being for all time. There is a blending of academic study with practical and the college program is so arranged that income earning experience may be gained where feasible in the calling for which the student is preparing himself.

While there is provision for full-time students, about 85 per cent of the student body divide their time between academic work at college and economic work outside. A single job is held by two students, who alternate in five-week shifts. The college work is divided about equally between technical and professional education and the essentials of a liberal education. In the liberal courses the student is given an acquaintance with fundamentals of nearly all the main fields of human knowledge and interest, rather than a more detailed knowledge of a few subjects. The technical or professional courses aim to prepare the student for responsible man-

agement and proprietorship in preference to making him a technical specialist working under orders. This training for proprietorship also aims to prepare for management in one of several specific callings, including educational administration, industrial organization, machine shop operation, printing and publishing, contracting, civil and mechanical engineering, manufacturing, merchandising, and institutional and household management. Four degrees are offered: Bachelor of Arts, Bachelor of Science, Master of Arts, and Master of Science.

The chief reason for the part-time work is its educational value. The ability of a student to support himself is the best possible training in self-reliance. Academic study supplies only a part of the factors of education. The student does not master his calling until he has practiced it; he does not know of what stuff he is made until he has tried himself out. If his work in industry gives meaning to his studies and his studies to his work, his development will be better balanced, and his apprenticeship after he leaves college will be shortened.

In the endeavor to determine the relative importance of human needs, problems and experiences, for which preparation should be made, certain well defined issues present themselves and in giving recognition to these issues it is found they, to a considerable extent, determine the content of the college program. Recognition is given to the physical well being of the students. It is considered a fundamental necessity for successful living. So at Antioch college, the development and maintenance of health and physical vigor are considered essential and are provided for in the curriculum. Since a human being must maintain good health in order to be most effective, physical education is required of every student. To know how to sleep, to eat, to exercise, to maintain correct posture, to resist disease, is fundamental.

Each student takes part in competitive athletics for the educational as well as the physical results. Intercollegiate athletics are encouraged within reasonable limits, but do not

dominate the college. This season, football, baseball, and basketball games have been played with other college teams, and similar schedules are arranged for the coming season. The girls are represented in basketball, tennis and hockey. As many students as possible represent the college in intercollegiate games. The others belong to intramural leagues in basketball, baseball, tennis, and track. The student is given wide freedom of choice in the required physical exercise, except where specific training is prescribed to remedy definite defects. Physical efficiency tests are given twice a year to measure the students' progress in physical development. The equipment for the department of physical education consists of a large gymnasium with basketball, volleyball, and indoor baseball courts and on the



Posture of students is classified using the Harvard scale. Most of Antioch's unselected students fall in Class B.



Actual drawings of Antioch students before and after corrective gymnastics.

campus a football and baseball field, tennis courts, and a limited amount of track and field equipment.

Each student receives a thorough and complete physical examination each year. If defects are found they are either corrected or the student is advised as to what he may do to overcome or remedy such defects. It is at times necessary for a student to consult a specialist for the purpose of completely removing certain defects. In the nearby cities of Xenia, Springfield, and Dayton there are oculists, aurists, surgeons, roentgenologists, dentists, and other specialists who co-operate with our medical department in looking after the physical needs of the students.

The students as a general rule do not object to physical examinations. On the other hand they seek them. Students show a growing interest in their physical welfare and are anxious to cooperate in the correction of defects found. When told that their physical condition is good they are greatly pleased and if any apprehension previously existed they are relieved of a burdensome anxiety. During the physical examinations the students are alone with the medical examiner for a time and most of them readily ask questions relating to their physical welfare, existing defects, and personal hygiene. This is one of the most important phases of the work.

Medical Supervision

The physical examination is thorough and includes all the important systems of the body. It embraces a full medical history of the student, together with a study of the heart, lungs, genito-urinary system, vision, hearing, teeth, throat including tonsils, the thyroid gland, the skin, the feet, posture, blood pressure, urinalysis, hemoglobin estimation, and the determination of the status of color vision. An outline drawing is made of the body side view for the purpose of making a posture rating and to file for future use in deciding whether improvement in posture has been made.

Special attention is given to posture and body mechanics. It has been found that good posture and efficiency go hand in hand. Students are rated according to their posture. If the body mechanics are found defective the student is assigned to a class in corrective exercises, conducted by the director of physical education. The student is then taught correct posture; the correction is fixed by physical exercises; then general exercises and sports in the fixed correct posture are



In order to insure a well-rounded diet, the dining room management spends as much for milk and fresh foods as for meat.

carried on in order to bring about a firm fixation of the correct-posture habit.

For the purpose of rating each student the four classes as evolved at Harvard university are followed. Class A shows good mechanical use of the body. The head is straight above the chest, hips and feet. The chest is up and forward. The abdomen is in or flat and the back curves are not exaggerated. Class B is not as good as class A but it is about as near the ideal as we generally find among unselected students. Compared with class A the head is more forward, and the chest not so well up. The abdomen and back are about as in the better class. Class C shows poor mechanical use. The head is forward, the chest flat, the abdomen relaxed and the back curves are exaggerated. Class D may be considered very poor as will be seen in the accompanying illustration.

Students who are rated as C or D are placed in corrective exercise classes which meet regularly in the gymnasium, and are given instruction and exercises which tend to develop good habits of posture. When good habits have been established corrective class-work ceases. In the last semester posture drawings are again made for comparison with those prepared earlier in the year. Two sets of drawings are herewith illustrated to show the same three students before and after corrective work.

As practically our whole student body spends half of its time away from the campus, in towns and cities, the risk of contracting certain diseases is greater. To meet these conditions all students are urged to take the anti-typhoid inoculations, vaccination against smallpox, and inocula-

tions of diphtheria toxin-antitoxin mixture. These are given without charge by the department. The number of students who have availed themselves of these opportunities is large. Antioch college, being situated in an endemic goiter belt, we are solicitous about the prevention and cure of this condition. All students found with simple enlarged thyroids are placed on iodine. As a prophylactic measure the whole student body is given minute doses of iodine by adding to one food of each meal the required amount of iodinated table salt.

Food Supervision

The drinking water and milk used at the college are under constant supervision and are daily examined in our departmental bacteriological laboratory. The sources of our food supplies, especially meats, are frequently inspected. All of our food handlers are repeatedly examined and also investigations are carried on to detect typhoid carriers among them. Practically all members of the student body eat at the college dining hall during residence. The foods are well selected as to quality and physiological balance. Some green or raw food is daily included in the menu.

The main purposes of our common college dining hall are convenience and accommodation of the students; the provision of good food and service at reasonable cost. At present, board is provided at the very low rate of four dollars and fifty cents per week, which makes the average per meal cost less than twenty-five cents. We attempt to feed not only scientifically but also acceptably. It is a pleasure to state that very little fault has been found on the part of the student



Women's dormitory showing entrance to dining hall where all the students eat.

body either with the quantity or the quality of the food, or the service. Three meals are served daily. Breakfast and luncheon are provided on the self-service cafeteria plan while evening dinner is served in family style. All of the dining room help is derived from the student body. The dining room is largely under student government control, criticisms and suggestions are invited, and a monthly financial statement of the refectory is posted.

As to the general character and variety of the food, it may be stated that meat is served at two meals daily with the exception that we have three meatless luncheons each week, at which meals some other nitrogenous food is substituted. Milk is liberally supplied. Coffee or cocoa is served with breakfast. Raw food of some kind is daily provided. In season, oranges, grapefruit, figs, dates, and fresh vegetables of various sorts are found on the tables. Five days a week salads of lettuce, cabbage or celery, and once a week spinach, are furnished. It is our aim to spend as much for milk and for fresh foods as for meats. At breakfast both cooked and uncooked cereals are at hand. A vegetable oil preparation, the purity of which is more fixed than that of butter derived from various and unknown sources, is substituted for butter.

The dietitians in charge of our kitchen and dining hall are also instructors in the college. Courses are given in nutrition and cookery for the purpose of giving young women basic knowledge of the nutritive value of foods. The choice, preparation, and

serving of the most common types of food are studied. Especial attention is given to manipulation and standardized products in cookery. Our kitchen and dining hall are used by selected students as a place for the practical application of theories evolved in the course in nutrition and cookery.

Antioch will not have put forth its greatest effort nor have accomplished its full purpose if it sends out into the world and industries men and women who are not physically fit. It is Antioch's object to have every student leave Antioch in better physical condition than he or she entered. If this ambition is not realized then the Antioch program will at least have failed in part. The effort to keep a true perspective of values and to bring about symmetry of development is fundamental at Antioch.

Results of the Recent Population Census

The final results of the fourteenth census summarized by Joseph A. Hill in the *Journal of the American Statistical Association* show a retardation of population growth. The increase in the percentage of urban population is more striking, all things considered, than in the previous decade, and results to a greater extent from cityward immigration. A decrease is shown in the percentage of the foreign-born—caused by the check to foreign immigration—and in the percentage of negroes, this last indicating a declining birth rate for that race. A decrease is noted in the proportion of children and adults under

thirty-five to the total population and a corresponding increase in the proportion over thirty-five. That during the past ten year the urban population has grown at the expense of the rural population is very apparent and, in view of the check in immigrant movement, the growth of cities has been largely domestic immigration. This domestic cityward immigration Hill estimates as between 3,000,000 and 4,000,000. He does not deplore the condition, but regards it as inevitable in a settled and growing country.

The percentages of foreign population he regards as misleading for the reason that children born of foreign parents the census classifies as natives. A more significant feature is the percentage of foreigners in the adult male population over 21 years of age. This percentage for the whole population is 22.1, more than 1/15 of the total. In the several states higher rates are given as 35.4 for the middle Atlantic states (New York, New Jersey, and Pennsylvania) 38.2 in the New England states; in Massachusetts and Boston 46 per cent; and in New York City 53.4 per cent.

The decrease in the proportion of children probably reflects a declining birth rate. This effect is partially disguised by the diminishing infant mortality rate. Some influence in percentages is likewise registered in a diminishing death rate in the period of middle age. The change in age composition is not a new trend but is more noticeable than in the census of 1910.

Mental Hygiene in Arizona

Several points of interest stand out from the published report of Thomas H. Haines in *Southwest Medicine* of the results of the mental hygiene survey of Arizona just completed with the cooperation of the National Committee for Mental Hygiene: (1) the percentage of psychopaths, neuropaths, and epileptics is low; (2) the retardation among Indian school children is relatively high; (3) that figures of normals and defectives in the reformatories appear more favorable than in the Indian group.

A fund of \$60,000 has been left under the will of the late William G. Vincent to establish a chair of tropical disease at Tulane University of Louisiana School of Medicine, New Orleans. Thirty thousand dollars has also been set aside for the erection of an isolation building for the Charity Hospital, New Orleans.

Reconstruct Old Physic Garden in St. Louis

The old Chelsea Physic Garden in London, which is still in existence and which was visited by Linnaeus in 1732, has been reproduced in St. Louis. It is described in the *Journal of the American Medical Association*.

While synthetic medicaments have held the focus of medical attention during the last two decades, those which may be obtained from medicinal plants have continued to be of great utility, and many even irreplaceable. Such plant derivatives as cinchona, aconite, opium, rhubarb and senna still command a wide range of use in medical practice. For this reason the exhibit at St. Louis by the Missouri Botanical Gardens of a reproduction of the old Chelsea Physic Garden attracted a large number of the physicians who visited the annual session of the association.

A recent issue of the bulletin published by this organization is devoted to an historical discussion of the famous garden which was reproduced. Even in 1673, as shown by this report, it was necessary to protect the physician and dealer in drugs against unsatisfactory and inefficacious counterfeits of valuable drug substances, and this necessity led to the establishment of the Chelsea garden.

A greenhouse, heated by so-called "subterranean heat" conveyed by means of a brick flue under the conservatory, was erected in 1681, and in 1732 the garden was visited by Linnaeus, who states in his diary that he collected many plants in the garden and that he was given several dried specimens from South America. The Chelsea garden is still maintained, although now administered by the trustees of the London Parochial Charities.

In the exhibit as made in St. Louis, the reproduction followed is the plan of the Chelsea garden drawn by John Hayes in 1753. To complete this demonstration the authorities of the Missouri Botanical Garden gathered in the museum building copies of old works on materia medica and other incunabula on botanic subjects of medical interest, and also provided demonstrations on the diseases of plants. The medical profession is greatly indebted to authorities of the Missouri institution for this practical historical demonstration of botanic therapy.

The Minnesota Commission for the Blind appointed by the governor in a report now in the legislature recommends that special funds be given the state board of health to maintain trachoma clinics. Surgeon Taliaferro Clark, U. S. Public Health Service, and Dr. L. L. Culp, Bureau of Indian Affairs, in December, 1922, examined 13,919 persons, chiefly school children, finding 77 cases of trachoma and 24 suspicious cases. Examinations were conducted in 108 schools in 70 sanitary districts of 13 counties.

Illinois is now in the U. S. birth registration area. An intensive birth registration campaign carried on for eighteen months by Isaac D. Rawlings, state health commissioner, resulted in the 90 per cent registration necessary.

Industrial Welfare Society, 51 Palace street, Westminster, London, S. W. 1, is preparing a brochure on pensions and superannuation schemes which will be sent to members or readers of *Industrial Welfare* on request.

A Protest From Iowa

By T. J. EDMONDS, EXECUTIVE SECRETARY, IOWA TUBERCULOSIS ASSOCIATION
DES MOINES, IOWA.

IN AN otherwise very excellent article in *The Nation's Health* for December, Dr. E. H. Lewinski-Corwin states that the standing committee of the New York Academy of Medicine "under its present organization is the only organization of its kind in the world." He further says that "none of the medical bodies abroad or in this country maintain a sustained interest in current public health problems as they arise, or consider them from the broad view of municipal policy and in the light of accumulated thought and knowledge which comes from a continuous contact with the whole realm of public health." A writer always incurs a risk in using either superlatives or terms of exclusion. Frequently an initially correct assertion ceases to be true before it emerges into print. Admonished by the experience of Dr. Corwin I shall not claim that the Field Activities Committee of the Iowa State Medical Society is the only year-round operative department of a state medical society with a paid director established for the purpose of activating the medical profession in relation to public health work, for sustained cooperation with lay social and health agencies, and for definite planning and functioning in public health endeavors on the part of both county and state medical societies. At least, however, this development of the Iowa Society is unique and is being watched with interest by other state societies and by the American Medical Association, and various national organizations.

The personnel of the Field Activities Committee is in itself indicative of cooperation in public health work. The director, Dr. F. E. Sampson, is the founder of the Community Hospital, located at Creston, serving a group of counties; he is a prolific writer on popular as well as technical medical subjects; he is now serving his second term as president of the State Conference of Social Work. The committee members are: Doctors F. E. Samp-

son, director; O. J. Fay, president-elect; W. L. Biering of Des Moines and B. L. Eiker of Leon, representing the Council of the State Medical Society; Dr. N. G. Alcock, representing the University of Iowa Medical faculty; Dr. R. P. Fagan, representing the State Board of Health; Dr. James Edwards of the Iowa State College, representing the State Conference of Social Work; T. J. Edmonds, representing the Iowa Tuberculosis Association. Dr. Biering is chairman and Mr. Edmonds secretary of the committee.

In the four months during which Dr. Sampson and the committee have been functioning the director has addressed meetings in fifty-one localities, has conferred locally with thirty-nine county medical societies, has secured the publication of five magazine and 150 newspaper articles relating to the work. One of the latter was a double column first page article in the Sunday edition of the largest newspaper in the state—a perfectly legitimate means of advertising which was worth hundreds of dollars to the profession. He has motivated county medical societies in at least twenty counties in the state to active cooperation with lay public health movements—especially in support of the Christmas seal sale of the Tuberculosis Association. The good will accruing to the profession through this pledge of interest in preventive medicine and community health work has not done the practitioners any harm.

As this article goes to press there is in session a joint meeting of the committee and the councillors of the state medical society. Subjects under consideration are: The Inactive County Medical Society, County Public Health Associations, the Sheppard-Towner Administration, the Rockefeller Foundation gift to the medical department of the State University, Public Health Legislation, discussed by men from the University, the State Board of Health, the Rockefeller Foundation and lay organizations.

Iowa Develops Unique Plan for Hospital Service

Medical Care Is to Be Equitably Distributed According to Need

By F. E. SAMPSON, M. D., DIRECTOR OF FIELD ACTIVITIES OF THE IOWA STATE MEDICAL SOCIETY, CRESTON, IA.

IN RECOGNITION of the need for correcting the increasing tendency toward congestion of the large cities, and its corresponding depletion of the less densely populated localities as regards resident medical practitioners, the Iowa State Medical Society at its annual meeting in May, 1921, delegated to a special committee the duty of formulating a plan for the correction of such disorder.

From the resolutions which were adopted by the House of Delegates defining the objects of the proposed plan, it was evident that the Iowa State Medical Society proposed to "hatch out," and become a continuously functioning institution instead of limiting its activities to those of a scientific society holding annual debates and expecting a few standing committees to meet all such grave emergencies that arise between annual sessions as invasion of the realm of science by predatory cults and ignorant pretenders seeking legislative privilege.

The specifications for the plan provide for medical field activities to be carried on under the guidance of a full time director, that effort to be devoted (1) to perfecting organization and encouraging sustained activity of the ninety-nine component county medical societies; (2) stimulating interest and activity of such societies along public health lines; and to effecting co-operation between such societies and other agencies of the community as are engaged in related activities.

Without enumeration of all the specifications, it is sufficient for present purposes to state that the ultimate purpose is to promote efficient and equitably distributed medical service throughout the state of Iowa.

Such a plan must inevitably accord a large share of consideration to hos-

pitals not only to encourage the building of hospitals where needed, but also to promote high standards of service.

Of interest in this connection is the fact that Iowa has what is known as the enabling County Public Hospital Law under the provisions of which the people of any county may vote bonds to build and equip, and levy a tax to maintain a hospital. Such

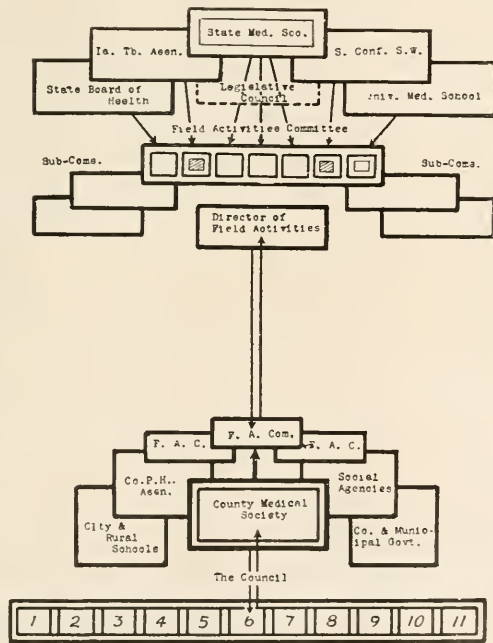
cal practitioners do not attract the recent graduate, it is not far to seek. The community that expects a doctor to come, or remain if chance brings him among them, and deliver a full measure of modern medical service with the same limited facilities that sufficed for dear old doctor Saddlebags might as well expect to fill the vacancy of lamented old dobbie and make the ancient buggy "go" by pouring gasoline in the whip-socket.

Ignoring, for the present, the modern tendency to specialize immediately on completion of the internship, the young man seeking a location for general practice of medicine must have the qualities of the pioneer or be strongly charged with the missionary spirit that forgets self in the glory of service for dear humanity's sake, if he can see opportunity for worthwhile investment of himself where even the beginnings for a modern hospital are not within working range.

But building hospitals by no means solves the problem. Indispensable as they are to the solution, the building and maintenance of hospitals in localities that need them is but one of the many factors essential to making medical service fully efficient throughout the state of Iowa. Buying a perfectly good piano does not assure high class music. (This simile is limited if not lame, because nothing like the mechanical player attachment for the

piano has yet been devised that will make a hospital function efficiently.) Our state is not without localities in which the premature construction of a perfectly good hospital building, fully equipped and moderately endowed, has actually complicated the problem as concerns the development of truly efficient service.

Even when a hospital is obtained



Organization chart, showing interdependence of all health, medical, and social organizations in the state. Each functions in and through the other in field service both as a stimulus and a check on the other, evidencing a real talent for organization. Upper portions of diagram show the social forces from which the Field Activities Committee derives its members. Lower portion indicates the general plan of coordination.

power under the law, however, has not as yet shown any remarkable solution for the problem of inadequate and inequitably distributed hospitals. Only five such hospitals are in operation. In a dozen other counties, the proposition has been submitted only to meet overwhelming defeat.

Why localities in greatest need of the services of capable resident medi-

under provisions of our enabling hospital law, a very considerable margin of uncertainty will remain until such time as minimum standards of service are demanded for all hospitals, and the slogan used in some of the hospital campaigns—"equality of privilege" for all doctors, is relegated in favor of "*equality of opportunity for all who will conform to modern standard regulations.*"

Assembling the conclusions drawn from study of the many involved factors, the situation was found to be this:

(1) The smaller cities and rural communities of Iowa can not attract and keep the kind of medical practitioners they need unless something approximating modern hospital facilities is provided.

(2) The people of such communities, though they do contribute as church members to the maintenance of denominational hospitals elsewhere, will not tax themselves or otherwise contribute to the building and support of a hospital in their own community until shown that a hospital means more than an operating room surrounded by rooms for the convalescence of those who survive the operations.

It is one of those frequent occurrences in human affairs involving community of endeavor in which the driving wheels get caught on center—a sort of vicious circle—that we sometimes try to correct by prescribing for symptoms instead of tracing back to causes before we decide on the treatment. This vicious circle some would break with the hammer of mandatory legislation and pay for immediate relief in reactionary complications, perhaps *calamitous* in nature.

A committee on field activities is made a standing committee of the State Medical Society. Its duties include those formerly delegated to the Committee on Health and Public Instruction.

It shall be the function of this Committee to collaborate with the Council as a body and with its members in the formulation and carrying out of programs in their respective districts. It shall be the special agency through which the State Medical Society and other agencies concerned with related activities may establish sustained working relations, formulate joint programs, and promote interest and activity in lines calculated to increase the adequacy, efficiency, and equality of distribution of applied medical science throughout the State of Iowa.

The number of members shall be seven. With the exception of two below mentioned, the members of this Committee shall be members in good standing in the Iowa State Medical Society.

The president-elect shall be an ex-officio member of this committee from his election until his inauguration as president. The other six members shall be selected as follows:

Two shall be nominated and elected by the Council. The other four to be apportioned and selected as follows:

One is to be chosen by the Iowa State Board of Health.

One by the faculty of the University of Iowa Medical School. (Both these to be members in good standing of the Iowa State Medical Society.)

One to be chosen by the Executive Committee of the Iowa Tuberculosis Association.

One by the Executive Committee of the Iowa State Conference of Social Work. (The last two named may be chosen by their respective organizations for their fitness to represent the specifically declared purposes of the organization.)

Except the president-elect, the members of this committee shall be elected for two years. (Those elected by the Council are to cast lots for the short term so that one of the two will be elected at each annual meeting after 1922.)

The Committee on Field Activities shall be empowered to employ such help as it deems necessary within the limit of the aggregate appropriation approved by the Board of Trustees and House of Delegates of the state society; to enter into such working agreements with associated agencies as it may deem wise and proper; to recruit volunteer speakers' bureau and to pay the actual expenses of such speakers; and to defray also the actual expenses of members of the committee that are incurred in performance of duties connected therewith subject to the same rules and restrictions that apply to the Board of Trustees. All bills for expenditure of the appropriation shall be subject to approval of the Board of Trustees of the Iowa State Medical Society after which, warrants for payment of same shall be made according to the provisions of the Iowa State Medical Society's by-laws. The committee shall not incur obligations beyond the provisions of the appropriations placed at its disposal by the House of Delegates, but this shall not prohibit expenditure of funds that may be derived otherwise than through said appropriations.

The plan recognizes the county medical societies as the terminal functioning units of the State Medical Society, as aggregations of local practitioners of medicine functioning as a local influence in local affairs and collaborating with other local forces in definite local programs that aim to solve problems of importance to people of the local community, as well as to the local practitioners. This is in contrast with policies thus far followed by most of our state medical societies in which the central organization distributed its service to the members as individuals, and, aside from collecting annual dues of such members, neither demanded of, nor delivered to the county society much, if anything, more than recognition as a register of local members of the State Society.

The object of the proposed field activities is to develop our county societies as responsive and responsible medical aggregations, that shall sustainably function in their respective counties, not only within themselves as scientific bodies, but in cooperation with other agencies concerned with conserving the health of the community.

Women Voters Will Push Social Hygiene Bill

The winter's federal legislative program of the National League of Women Voters has as its right-of-way measure to which all other measures must give place House and Senate bill (H.R. 11490 and S. 3544) which provides for the carrying on by the Department of Justice of the work of the Interdepartmental Social Hygiene Board. Mrs. Ann Webster, chairman of the League's national committee on social hygiene and chairman of the sub-committee of the Women's Joint Congressional Committee will, according to *The Social Hygiene Bulletin*, direct this work as well as urging on state League committees the necessity of working in thirty-four states for the enactment of the standard vice-repressive law which in defining ing prostitution as an offense of both sexes enables the authorities to hold the man as well as the woman.

The Public Recreation Committee of the Brooklyn Chamber of Commerce is making a survey of the Borough to determine where parks and playgrounds should be placed. It is urging that the city establish a few large parks and a large number of small ones, especially in territory not yet built up where land is still cheap.

School Lighting to Conserve Vision

By A. L. POWELL AND A. D. BELL, LIGHTING SERVICE DEPARTMENT, EDISON LAMP WORKS, GENERAL ELECTRIC COMPANY, HARRISON, N. J.

AN EDUCATIONAL system which permits from eight to fifteen per cent of its children to acquire defective vision within the few years of their school lives has something intrinsically wrong. The fact that eye troubles are more prevalent among children in the advanced grades indicates that this strain is increasing. In most cases, the child receives his first exacting eye work when he goes to school where from necessity a large quantity of printed and written matter is placed before him.

It can, therefore, be easily understood how a child, born with normal vision but forced to do detailed work, oftentimes under inadequate illumination develops poor eyesight. It is essential, therefore, to provide good illumination in the school that those pupils with normal eyes may see properly and that those with defective vision may do better work. Backwardness of many pupils, formerly ascribed to mental deficiency, has been caused by defective vision. In this connection alone, proper lighting of the schoolroom is an economy as the cost of teaching the pupil forced to spend an extra year in school because of defective vision offsets any saving in lighting expenditure.

In the majority of schools, arrangements for daylight are satisfactory but artificial lighting is frequently inadequate. Systems in use often consist of bare, clear incandescent lamps, and where reflectors are used, units

are frequently hung in such positions as to produce eyestrain. Again, intensity of illumination is often far too low.

Artificial lighting is necessary in schools to supplement daylight on cloudy and stormy days. The crowding of schools in the last few years has made night sessions a common practice which calls for good illumination if the student's vision is to be conserved.

With the unit of intensity of illumination the foot-candle, defined as the illumination on a surface normal to a one-candle-power source at a distance of one foot, the following table of light has been worked out for the school:

Classroom	5-7 foot-candles on desks
Study room	6-10 foot-candles on desks
Office	6-8 foot-candles on desks
Cloak room	3 foot-candles on floor
Corridor	1-2 foot-candles on floor
Laboratory	8-10 foot-candles on tables
Auditorium	3-6 foot-candles on floor
Drawing	8-12 foot-candles on tables

A distinction must be drawn between those classrooms which are used for clerical work, reading, and writing, and those used for sewing, art, metal work, drafting, chemical experiments, and the like. The latter rooms should be illuminated to the higher values given in the tables. Fine needle work by young children should be done only in daylight.

Elimination of glare in school lighting is most important as it is this factor which causes the greatest amount of eyestrain. When bright light sources are placed high above

the head as the noonday sun, the eyebrows protect the eyes, but indoors lights often must be hung low, thereby coming within the field of vision. This brilliancy can be reduced by diffusing globes, shades, or reflectors which either effectively enlarge the light sources or actually hide them from view. Care should be taken, however, that over-diffusion or flat illumination does not occur as this condition is trying to the eyes.

Not only must light sources be considered in providing diffusion, but the walls and other objects must be given attention. Dull rather than polished surfaces are desirable, and even a polished or waxed finish is more desirable than varnished or highly polished surfaces on the desk and other furniture, as the latter produce mirrorlike effects in reflecting the light sources. In this connection, attention should also be given to the desirability of mat rather than glossy finished paper, for paper with a glossy finish likewise reflects light in an annoying manner.

Distribution of light has two extremes—local lighting and general illumination. In local lighting relatively low candle-power light sources, located rather close to the work, furnish a high intensity of illumination over a small area. There is a tendency to use local lighting in drafting rooms, machine shops, and sewing rooms. The lamp is often under the control of the pupil who knows little of its proper use and often works in



Classroom in Public School 21, New York City, showing how light tinted walls and ceiling aid illumination. The semi-indirect unit system gives excellent diffusion and eliminates direct and reflected glare.



General lighting with fixtures above the students' vision has been found more effective in laboratories than individual lights subject to control of the pupil.



Tinting of walls and ceiling of this high school classroom would greatly increase illumination.



Overhead illumination simulating daylight is the system best suited for schoolroom lighting.

his shadow. Local lights often cause annoying glare to pupils at adjacent tables and drop cords are often tied back which constitutes a dangerous practice.

In general illumination, much larger lamps, hung as high as possible and providing almost uniform lighting throughout the room, are used. This system simulates daylight and is best suited for schoolroom lighting. It has the advantage of a less expensive wiring, less danger from breakage of lamps, and produces less glare. No lighting unit should be hung below a line extended from the eye of a student in the rear seat to a point two feet above the blackboard.

Eliminating glare from blackboards will also aid in conserving the eyes of the pupil. To minimize glare, blackboards should have matt rather than polished surfaces. They should never be located between windows.

Direct, semi-direct, and totally indirect systems are all employed in school lighting. Totally indirect lighting produces a very high quality of illumination but requires a relatively large wattage for a given intensity. With such a system, there is little possibility of glare and the light is soft and comfortable to work under. The inverted bowls, however, tend to accumulate dirt and unless cleaned frequently the light output is materially reduced.

Semi-indirect lighting is an intermediate practice, most of the light from the lamps being directed to the ceiling with a slight amount transmitted through the glassware. It is slightly more efficient than totally indirect lighting; the resultant illumination is well diffused; and such shadows as are produced are soft and cause no annoyance. The best forms

of semi-indirect units for school work employ dense glass or some other means of reducing brightness of the lighting unit.

In many of the older installations, open bottom, direct lighting units are used. Such a system is obviously efficient from the standpoint of light utilization, but the diffusion is not of the highest quality, shadows and contrasts are likely to be rather severe, and direct and reflected glare become serious, particularly if clear bulb lamps are employed. The use of this form of lighting is advisable only where costs must be kept at a minimum and where secondary consideration is given to the quality of illumination. Where direct lighting is deemed advisable, dense opal or etched prismatic reflectors should be used. These transmit but a small portion of the light, and are, therefore, not very bright. The flat type reflectors should never be used in a schoolroom, for it is almost impossible to conceal the filament from view when using this style of shade. Opaque reflectors are, of course, generally unsuited, as the ceiling would be very dark when these are used.

In view of the above analysis, the enclosing, diffusing, direct lighting luminaire seems to be, at the present state of the art, the most generally applicable equipment for classroom lighting. If the proper type is chosen, a well diffused illumination quite free from direct or reflected glare is produced. Although the major portion of the light is directed downward, a considerable amount is transmitted upward, thus giving a cheerful appearance to the room and a character of illumination closely akin to that produced by semi-indirect units. Such equipment does not depreciate as rap-

idly with accumulation of dirt as do other fixtures producing the same general quality of illumination, but cleaning should not be neglected.

Light colored walls and ceilings always aid in any system of illumination. Light on the ceiling is very desirable for when reflected downward it reduces contrasts and softens shadows. Therefore it is generally advisable to paint ceilings light tints regardless of type of lighting installed. Deep crevices in glass, though decorative, accumulate dust.

Part of the equipment of any school system interested in conserving vision is the small portable photometer known as the foot candle meter, which measures illumination on desk, workbench, or table.

Adequate illumination in schools is vital to the health of the school child and will be a great step in preventing visual defect.

Health teaching was given an important place on the program of the Pennsylvania State Education Association, which met at Bethlehem in January. Dr. Thomas D. Wood, professor of physical education, Columbia University, stated that health education should be closely correlated with other school subjects. Dr. Charles H. Keene and Miss Anna L. Stanley, state department of public education, also urged that health be made an integral part of every school program.

Seventy-five per cent of initial decay resulting in ultimate loss of molars begins on the grinding surface of teeth, says Dr. Thaddeus P. Hyatt, dental director, Metropolitan Life Insurance Company.

THE NATION'S HEALTH

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Health Equipment in Framingham—Then and Now

**Tuberculosis Decreases 55 Per Cent
And General Death Rate 16 Per Cent**

By DONALD B. ARMSTRONG, M.D., EXECUTIVE OFFICER, AND A. K. STONE, M.D., ADMINISTRATIVE DIRECTOR,
FRAMINGHAM, MASS.

THE Community Health and Tuberculosis Demonstration was started in Framingham January 1, 1917, by the National Tuberculosis Association with the financial assistance of the Metropolitan Life Insurance Company to determine whether it was possible to diminish both morbidity and mortality from tuberculosis in a community with an average equipment for health work. Under the guidance of a national committee appointed by the national association, an attempt was made to discover the amount of tuberculosis, active or latent, in a population of seventeen thousand people, and to try to bring the disease under observation and control. It was further hoped that the amount of fresh tuberculosis developing in Framingham could be diminished and consequently the volume of future devastating sickness and death permanently reduced.

The changes that have come in the machinery for combating tuberculosis in Framingham in the six years of the demonstration, as a result of local efforts to accomplish these ends, are interesting from several points of view. First, they reflect what was considered fairly good work six years ago. Second, they suggest what may be considered relatively advanced health equipment at the present time, operated under fully responsible local auspices, and largely financed from town funds, either public or private.

Framingham's greatest practical advances have been in improvement in municipal methods of attack on tuberculosis by the board of health and school committee and in popularization of health knowledge among the townspeople. This latter has developed in part from medical supervision of so many people in the community by private physicians, medical staffs of the larger manufacturing plants, insurance companies, and finally through educational work of the demonstration itself.

So successful has been the work of the demonstration that almost the entire community program has been locally assumed, and it is looking forward to the time when it can advisedly withdraw from direct local participation.

Framingham's greatest practical advances have been, first, in the improvement in the municipal methods of attack on tuberculosis by the board of health and school committee; and second, in the great popularization of health knowledge among the townspeople. This latter has developed in part from the medical supervision of so many people in the community by

private physicians, by medical staffs of the larger manufacturing plants, by insurance companies who supervise health of their policy holders and families, and finally through educational work of the demonstration itself.

Changes which have taken place in Framingham are summarized briefly below. The community machinery, still incomplete in many respects, represents a development based upon a growing conception on the part of the town itself and its leaders in politics and industry as to what constitutes adequate health work.

In 1916 the board of health had recently appointed a full-time health officer who had under his supervision the following activities: Laboratory examinations, quarantine of contagious cases and care of tuberculosis cases, and certain police duties imposed upon the board by the laws of the commonwealth. There was a small though fairly complete laboratory equipment. The cost of health work for this year was \$8,061.79. A tuberculosis clinic had been carried on by the local tuberculosis association, but was taken over by the board of health the latter part of 1916.

In 1921, in addition to the above mentioned activities, the following services were added under the direction of the health officer: One tuberculosis nurse (an active visiting list of approximately 100 names); one

tuberculosis clinic with consultant on call at all times; two infant and preschool nurses (450 babies visited regularly); three part-time infant welfare physicians; four infant clinics in various sections of the town; one infantile paralysis clinic—semi-monthly; one venereal disease clinic—weekly.

The department has recently moved its quarters to the building in which are located the other town offices and has fitted up its rooms at a cost of \$1,400. The new laboratory is well arranged and equipped with ample space for all services. The health work as carried out by the board of health in 1921 cost \$18,607.04, an increase of 130 per cent over 1916. The 1922 budget as requested and granted totaled \$20,000.

In 1916 there were in the Framingham schools 3,039 children. At this time the health machinery consisted of a part-time physician and one full-time nurse. Physical examinations were made on the request of nurse or teacher. The amount expended in 1916 for health was \$1,518.50.

In 1921, with a school population of 3,349, the health work as carried on was as follows: One physician with full interest, but devoting half-time to school work. This is not enough time to allow for proper study of over 3,000 school children; one nurse (assists physician with examinations, visits absentees reported ill, etc.); one dental hygienist (cleans mouths, gives talks to classes, holds tooth brush drills, etc.); one dental clinic with complete outfit; two dentists in charge one day each week (number of fillings in 1921, 706, in addition to other treatments); one gymnastic director and physical educator, and instructor in physical training. The above health work cost approximately \$5,976.10 in 1921, an increase of nearly 300 per cent over 1916.

Under the joint auspices of the school committee and board of health, 900 children have been given the Schick test.

In 1916 there were two modern school buildings in Framingham and the survey, reported in Monograph No. 6, repeatedly mentions the need for new buildings. Two of these have been completed and are of the most satisfactory modern equipment.

Appropriations have been made for two additional buildings and one of these is well along in its construction. The site for the fourth has been selected and the plans approved. The total cost of the four new buildings will be approximately \$790,000.

The machinery for improving health

and preventing accidents in industry has steadily increased due in part to the general laws of the state. Advances made in two of the largest industries in the community are as follows:

(A) *Largest Industry*.—In 1916 2,200 were employed. The health work consisted of one nurse, rest room, one-room clinic, physician on call, or two visits a week, a sick benefit association for male and female employees. The cost for this service amounted to \$2,842.

In 1921 there were 2,700 people employed. Health equipment was as follows:

One full-time physician; two nurses; one rest room; three-room clinic; surgical, throat, dental, and ophthalmological outfits; sick benefit associations now assure three weeks hospital treatment, if necessary, in any year to all members. Membership is \$2.00 a year.

Industrial Health

Further developments in this industry have been the examination of all new employees by the plant physician, this procedure being at the request of the works committee. Special medical supervision of department heads is carried out by a local physician, and the services of the Health Demonstration consultant are called for on questionable tuberculosis cases. The cost of the health work for 1921 was \$9,412. In July 1922 an up-to-date dental clinic was installed with a full-time dentist in charge. Although the expenditure is large the administration feels that increased efficiency of the employees amply justifies the outlay.

One of the worst of the tenement blocks in the town is soon to be purchased by this industry. It will probably be demolished as soon as the erection of new houses justifies the action. This will mean a great advance in the sanitation of living conditions.

(B) *Next Largest Industry*.—In 1916 this concern had no health work. In 1921 under new management and employing 670 people the equipment for health conservation was as follows: One full-time nurse with clinic and small rest room; minor surgical outfit; compulsory examinations for all new employees; services of health station consultant for the carrying on of voluntary medical examinations for old staff, and examinations of all new employees. Six hundred and fifty examinations were given from September, 1921 to September, 1922.

This concern has made some improvements in their tenement property and a betterment of sanitary conditions will doubtless be effected when a new sewer system, now under way, is completed.

Correlative Agencies

(a) *Civic League*.—The Civic League was organized in 1917, the new building and swimming pool being opened to the public May 1, 1918. Infant welfare work was inaugurated and expanded by this private body, at first financed by the Community Health Demonstration and later taken over by the official health authorities. General health and educational work has been carried on regularly, gymnasium facilities are offered to the public and health clubs and community garden clubs formed. The estimated cost of the health aspects of the work is \$2,500.

(b) *Hospitals*.—There are two hospitals in the town, one of which containing one hundred beds, is partially endowed, and the other of thirty beds is privately conducted but open to the public. Both hospitals have training schools connected, the student nurses aiding in several important demonstration activities. One of the hospitals has a district nursing service connected with the training school. Both hospitals have first-class x-ray plants, the equipment in one of them being supplemented from demonstration funds. In 1922 a group of women citizens further contributed \$1,500 for increasing the x-ray facilities.

(c) *Park commission*.—This commission has cooperated by offering the facilities of the public parks and playgrounds where the children of Framingham benefit by healthful and supervised play. Five playgrounds in all, financed wholly by this commission, were operated in 1921. A physical director has supervision of the playgrounds, the cost of their operation in 1921 being approximately \$2,000. In addition, the park commission has loaned to the demonstration an old Fair Grounds building for children's camp purposes, throughout several summers.

(d) *Framingham Women's club*.—The "Mother Craft" idea was introduced into one of the schools at the instance of the Women's Club. This may be taken over eventually by the school department.

(e) *General Conditions*: (1) *Sewerage*.—In 1916 the town had a sewerage system only in the southerly section, as reported in the demonstra-

tion sanitary survey. A plan has been devised for a sewerage system for Saxonville and the Center Village but was held up until 1922 when a report of a new committee was adopted and an appropriation of \$300,000 made to carry out the work. Surveys for this work are being carried on at present and contracts will be let early in 1923. This will fill a long recognized need in the sanitary conditions of the town.

(2) *Milk Consumption*—The main distributors of milk in Framingham state that there has been a marked increase in milk consumption during the demonstration period. Families who averaged one pint to one quart daily in 1916 are now using one quart and a half to two quarts daily. The percentage of pasteurized milk has increased from about 15 per cent to between 70 and 80 per cent.

The presence of the demonstration in Framingham has added materially to the ordinary health work being done, and the town must be considered exceptional on account of its stimulative influence. In addition to the assistance and stimulation given toward the development of practical, routine, and permanent health services, and in addition to general health educational work, the demonstration contacts with professional groups have been most helpful and significant.

One outstanding result of the work, not enumerated above, is the increased interest of the physicians in tuberculosis, and their keen desire to discover new and early cases. It was at the request of local physicians that the most important contribution of the demonstration to the early discovery of tuberculosis was developed. The demonstration was urged to provide a consultant to see certain cases of doubtful tuberculosis, the calls becoming so frequent that a permanent medical examiner, Dr. P. C. Bartlett, was added to the staff. These contacts with the local medical men have averaged about three hundred consultations each year, the service being utilized by practically all practising physicians in the town. This measure, unique in tuberculosis work, has greatly aided in the recognition of tuberculosis at an early stage.

The consultant has found it desirable not to confine his work to tuberculosis alone, but, so far as he was able, has given assistance in general medicine, with the result that by his constant contact with the physicians he has come to pass upon many cases where tuberculosis, while not originally suspected, was subsequently discovered. The physicians of the town have abundantly endorsed the prac-

tical value of this consultation service to them and to the whole community.

Results of some of the investigative activities undertaken by the demonstration may also be summarized as follows:

(1) The health census disclosed 6.2 per cent ill, 1.8 per cent strictly incapacitated, 6,582 people being enumerated.

(2) Examination of thousands of men, women, and children in Framingham showed that approximately 1 per cent were suffering from active tuberculosis, 1 per cent from arrested tuberculosis, and 77 per cent from all forms of illness and disability.

(3) Four hundred and sixty children, 1 to 7 years, had the von Pirquet test in 1917. The 33 per cent who reacted positively and who were subsequently followed at four different intervals disclosed no cases of recognizable tuberculosis.

(4) Seven hundred people who had influenza during the epidemic of 1918-1919 were physically examined three months after the onset. Active cases of tuberculosis were found in 2 per cent. There have been three subsequent follow-ups of this group, with largely negative results so far as tuberculosis was concerned.

(5) The intensive medical work of the demonstration, the school and factory examinations, as well as the work of the physicians during the first year of the demonstration brought to light 9 or 10 active tuberculosis cases for every annual tuberculosis death.

(6) Before the demonstration started in Framingham 45 per cent of the tuberculosis cases were reported in the early stage; now about 75 per cent of the cases are being reported as early-stage tuberculosis.

(7) The minimum tuberculosis hospital bed requirement in Framingham during the demonstration has been from one to two beds for every annual tuberculosis death in the community. An abstract from a letter dated September 27, 1921 from Dr. Roger I. Lee, chairman of the appraisal committee on treatment, follows:

Furthermore, since the town of Framingham has done better than to keep one tuberculosis patient in a sanatorium for each death from tuberculosis, it is evident that such a showing indicates a high standard of treatment. These figures are of course not even approached in the state of Massachusetts or in any city or town with which I am familiar.

(8) For five years the health sta-

tion has conducted a health camp for under-nourished children, approximately 350 children having had the benefits of such a camp.

(9) The amount of tuberculosis in the community, active and latent, has been disclosed with a degree of completeness perhaps never before achieved, while new cases developing are promptly recognized and put under observation and treatment. The amount of morbidity from tuberculosis among young people who have come into adult life under the health campaign of the past six years has very evidently diminished, all of which should reflect itself very favorably and permanently in the health and sickness records of the community in the coming years.

(10) The sixth year of the demonstration, 1922, the last for which complete records are now available showed a decline of 16 per cent in the general death rate under the pre-demonstration decade average 1907-16, an improvement of 25 per cent in the infant mortality rate as compared with 1916, and a reduction for 1921-22 combined of 55 per cent in the tuberculosis rate under 1907-16 when corrected from resident and certification errors.

This growth and development of the town's activities, involving an increase in expenditures for local practical health services from 40 cents to about \$2.25 per capita per year, while stimulated and in some instances subsidized at least temporarily by the demonstration, has been for the most part carried out under local leadership. This reflects the belief of the committee in charge of the demonstration, that there is both willingness and ability to develop and support an adequate health program.

The demonstration is looking forward to the time when it may advisably withdraw completely from direct local participation. It is still interested in the consultation service, in the further coordination of local services, in the enhancement of adequate, official, local health leadership, and in the statistical results of the work. Yet almost the entire community program has been locally assumed, results are promising, and the termination, other than minimum provision for continued observation, seems not far distant.

A new child welfare station was opened in Cuba in November under the direction of Dr. Fernando Llanos. On the opening day a large quantity of sterilized milk was distributed.

Boston Women Learn Sanitary Inspection

WOMEN are being taught municipal housekeeping in the School of Public Service, established by the Women's Municipal League of Boston and the Massachusetts Committee of the National Civic Federation. Inspection of street cleaning, markets, and tenements are

drainage, cleanliness of stairs, halls, cellars, and yards. Food inspectors learn construction, plumbing, ventilation, and cleanliness, and how to score restaurants, markets, provision stores, bakeries, and ice cream and candy factories. Street and alley inspectors learn standards of cleanliness, house

cient garbage collectors and with indifferent owners of stores and factories who block passageways with piles of refuse.

Student sanitary inspectors tour the rooming-house district, the foreign sections where sidewalks are cluttered with tubs swimming with grape skins and vermin, the manufacturing district where loosely piled refuse blocks the streets.

A typical report of such a walk made by a student of the school reads:

Alley at clean except entrance to street which is littered with refuse. Mostly all the receptacles here are wooden. Collections had been made but several barrels filled with rubbish and ashes remained. This needs to be followed up to ascertain who is responsible—city men in overlooking them or householder late in putting barrels out. Several barrels in bad shape, one in particular broken and ashes thrown out.

Alley at covered with cans and papers. Two large holes in alley dangerous for horse and wagon.

The courses for policewomen and school attendance officers are equally practical.

So many applicants for the school were received that a second class had to be formed later in the spring of 1922. The limit of eighteen to each class insures personal interviews and individual instruction which is calculated to overcome differences in education, equipment, and experience among the women.



Courtesy Philadelphia Housing Commission.

Tours of inspection to foreign districts where junk piled streets impede the pedestrian are part of the practical work at Boston's Public Service School for women.

some of the subjects emphasized. Marjorie Shuler in the *American Review of Reviews* tells how Boston trains its women for specific city duties.

Registered in the school are women whose children have grown up leaving them with decreased home duties, middle-aged women with no children, widows with children to support, and women tired of routine office work. Federal, state, and municipal officials, college professors, and social workers voluntarily give their services as instructors.

Following the general course which covers the historical background of the modern city, its social structure, charter, officials, electorate, finance, and departments, the class is divided into three divisions, the class of policewomen, class for school attendance officers, and school of sanitary inspectors. The school aims to fill positions with a maximum salary of \$2,000.

The class of sanitary inspection has three sections. Tenement house inspectors hear lectures on overcrowding, light and air, plumbing and

waste disposal, trade waste, and snow removal. They learn how to deal with careless householders and ineffi-



Courtesy Philadelphia Housing Commission.

Streets littered with refuse from overflowing ash cans are heavily scored by students of the school.

Efficient Milk Control Boon to City Health*

How Birmingham Secures a Safe Clean Milk at a 25 Per Cent Price Decrease

By L. C. BULMER, CHIEF, DIVISION OF FOOD AND DAIRY INSPECTION, BIRMINGHAM, ALA.

THERE is probably no matter discussed less in public health circles than the problem of systematizing milk control, and, progress toward the solution of the milk problem has been practically arrested in all but a few of our larger cities due to inadequate organization and slipshod administration. Almost everywhere the public has been disappointed and the dairy industry discouraged by so-called "milk control," which has not attained its fundamental object. The majority of consumers are still receiving milk of poor keeping quality, frequently watered, and of questionable safety. Milk producers look in vain for the long promised increased consumption of milk and are confronted as much as ever with unscrupulous competition of illegitimate dealers ineffectively controlled.

On the health officer who fails to recognize the significance of the milk problem in his public health policy, who tolerates a milk ordinance which is impractical, or who compromises a system of control by appointing officials who are untrained, incompetent, and frequently political "dead-heads," falls the responsibility of jeopardizing the people's right to a wholesome unadulterated supply of milk, of failure to promote better health by bringing about an increased milk consumption, and of erecting a barricade that hinders the growth and prosperity of an industry which no nation can afford to be without.

Probably not 20 per cent of our cities have what may be truly termed systematic control of their milk supply, the remainder having systems of control in various stages of disorganization. This is substantiated by a report on milk inspection, a chapter from the forthcoming report of a committee appointed to study municipal health department practice which appeared in the *American Journal of Public Health*, July, 1922. From this report and other reliable sources the following facts may be quoted:

(1) In this country there are approximately only twenty-two cities where pasteurization of all milk is

To justify the existence of a dairy division and the expenditure of public funds, statistics must be available showing the public and appropriating bodies what milk control accomplishes. Data necessary are: Complete list of milk producers and distributors including grade of milk handled; monthly scores tabulated from daily reports of sanitary condition of premises, method of handling milk and its routine bacterial and chemical composition; clear record of tuberculin tests; average quantity of milk consumed per capita; amount of dairy products other than milk consumed; fluctuations in price of milk; benefits by public from cleaner milk and increased consumption per capita; and increased sales to dairy industry.

compulsory with the exception of certified milk or a corresponding grade.

(2) Of 83 cities in the United States with population of over 100,000, 35 have less than 75 per cent of their milk supply pasteurized; 15 have less than 50 per cent pasteurized. In many cities pasteurization is practically a commercial expediency and not a health measure, for the reason that 61 of the 83 cities quoted permit the sale of raw milk that does not meet with the requirements of either certified milk or with corresponding safety standards universally recommended as essential by authorities on this subject.

(3) In spite of the recommendations of the National Commission on Milk Standards concerning the grading of milk only 31 of the cities quoted have provisions for a grading system, and even among these 31 there is little uniformity as to requirements.

(4) No figures are available concerning the number of cities in this country who publish the scores of market milk based on the sanitary conditions of the dairy premises, methods employed, and bacterial and chemical composition. The number,

however, is known to be very small. Several of the smaller cities, however, publish the scores of dairy premises, which, of course, are of no significance in regard to quality of milk distributed.

(5) Of the cities studied only 43 require the scoring of dairy farms. The number of farms per 100,000 population is approximated at 621, while the number of official inspections per annum is between one and two.

(6) The average practice is the employment of between one and two inspectors per 100,000 population.

Imagine the task that confronts a personnel of three inspectors to systematize the control of a milk supply for a city of over 200,000 consuming 15,000 gallons of milk a day, derived from 1,000 different farms, produced by 7,000 to 8,000 cows and the product from the cow to the consumer passing through the hands of one to two thousand individuals. It may be assumed that not 75 per cent of this supply is pasteurized and the cycle of operations may be taking place within a radius of anywhere from ten miles to one or two hundred miles of the city.

The duties confronting a milk control personnel are roughly these: Sanitary inspection of all farms, including the scoring of premises and methods at milking time, devoting extra attention to dairies distributing raw milk; physical inspection of cows and checking of tuberculin tests; abatement of nuisances; supervision of milk distributions, including temperature tests, sediment tests, and the collection of samples for analysis several times monthly; inspection and scoring of milk plants, milk depots, and frequently creameries and ice cream plants; supervision of the pasteurization process, and carrying out the usual routine procedure in regard to the check on shippers to milk plants; grading of all milk; issuing of milk permits to milk producers and handlers; controlling the illegitimate cow-keepers and peddlers who spring up like mushrooms overnight; supervision of milk handled in hospitals, schools, hotels and restaurants, and last, but most important of all in connection with systematic control, mak-

*Read before the International Association of Dairy and Milk Inspectors' Convention, St. Paul, Minn., October 9 to 11, 1922.

ing out of regular reports of work done and compiling thorough records in connection with data required to be filed for reference purposes. The preparation of appropriate educational literature, the drafting of plans of new dairy buildings, and the reconstruction of old premises and attending to current correspondence and clerical work are other important items that fall to the lot of a dairy division.

Each of these different functions in milk control presents a separate field which requires organizing in order that no branch is neglected. It becomes necessary to split up the work into distinct classes or branches, such as (1) inspection and scoring of dairy farms, (2) inspection and scoring of milk plants and depots, (3) routine collection of samples during distribution, (4) inspection of milk supplies handled in volume in the city, and classification of other special branches immediately the amount of work performed is large enough to necessitate routine handling.

Zone Territory

Territory to be covered should be carefully zoned according to size and work to be performed and such zones placed in charge of inspectors who may be held responsible for results accomplished. In order that there may be an intelligent interpretation of the work done, an inspector acting in a senior capacity should survey each zone as a matter of routine with the individual inspector in charge to bring about uniformity of operations, and also standardize instruction given to milk producers and handlers, scoring of farms and plants, and the technic employed in the sampling of milk.

Assuming a city to have the necessary funds, the required law and the proper personnel, success or failure of a system of milk control will depend almost entirely on the business principles involved in office management. This is true of all branches of public health administration, and it is surprising that this factor is generally disregarded above all others in milk control.

In order to justify the object of such control, the existence of a dairy division and the expenditure of public funds, statistics which will stand the "acid test" are essential. This is a matter of vital importance to the health officer, board of health, and appropriating bodies. It is of great significance to the general public and those participating in the milk business. What does our milk control accomplish, is the logical question.

To answer this question definitely and that all work may proceed methodically, a most complete system of reports and records must be kept. Information and data necessary and desirable are: A complete list revised regularly of all milk producers and distributors, including grade of milk handled; scores or ratings compiled and tabulated monthly from daily reports of the sanitary condition of the premises, method of handling milk and its routine bacterial and chemical composition; precise information of sanitary surveys of all dairy premises; clear record of tuberculin tests; average quantity of milk consumed per capita, amount of dairy products, other than milk, consumed; fluctuations in price of milk; benefits derived by the public from a cleaner milk supply and an increased consumption per capita; benefit of milk control to the dairy industry in regard to increased sales and freedom from unscrupulous competitors.

Such information is called for from time to time, but many health departments cannot furnish such data or are unable to compile annual reports based on facts. Invariably most statistics are estimated, and where no proper record system is in vogue, such information is not only erroneous and misleading but usually worthless. There are, indeed, many health departments who could tabulate all the data on file in regard to milk control on a sheet of note-paper and in consequence are obliged annually to get on an estimating jag for the purpose of manufacturing a report that is virtually a waste of printer's ink. Daily reports of every operation performed are fundamental and from these should be compiled the monthly report, which in turn will form a basis for the annual report.

The cost of the various operations and salaries of the required personnel for the branch of milk control amount to a fairly formidable bill.

The appropriation required will depend largely on the size of the personnel and also to some extent on the qualifications and experience of persons employed and milk control should be in the hands of men who have not only had public health experience, but who have also a good knowledge of agriculture, particularly the dairy industry. Unfortunately salaries paid by municipal health departments are not sufficiently inviting to attract the service of such men, while in some cities no effort is made to secure them, as the training of a dairy inspector is given secondary consideration.

Size of personnel required will be

influenced by population of the city, radius from which milk is drawn and percentage of milk supply pasteurized. It is not possible everywhere to proclaim compulsory pasteurization for such a measure in some cities is ahead of public thought and demand. This can only be changed by the actual experience of a milk-borne epidemic, or through education which takes time to assimilate. Cities demanding raw milk, however, should necessarily pay for the extra vigilance required.

I. V. Hiscock in his report on health department practice shows the appropriation utilized for milk control in this country in 1920 varied between \$0.014 to \$0.13 per capita, the average for all the cities studied being \$0.04. Hiscock and his committee intimate in conclusion that they feel an adequate allowance for milk control would be \$0.05. With all due respect to Mr. Hiscock and the committee in question, data of conditions existing in this country, which they themselves vouch for, all point to the fact that the slight increase suggested would not bring about any material improvement in the direction of better organization or additional personnel which goes with it—especially in the numerous cities where raw milk is permitted to be sold.

Milk Control in Birmingham

As an instance of this fact Birmingham, Alabama, may be quoted. Birmingham has a population of approximately 200,000 and at the time when the Hiscock committee made its investigation the health department was utilizing an appropriation of \$10,500 per annum for milk control, an expenditure amounting to approximately \$0.052 per capita. Those who were familiar with the milk supply of Birmingham at that time will substantiate the statement that the system of control was inadequate and indeed practically worthless. It was not possible then even to attempt the grading of milk, which, if such a system had been inaugurated would have merely afforded a means to milk peddlers to impose on the public. Market milk was regularly distributed containing a million or more bacteria per cubic centimeter, gross sediment was to be found in the average milk bottle, and it is not to be surprised that Birmingham consumed less milk for its size than possibly any other city in America, consumption amounting to approximately less than one-fifth pint per capita. Milk was then a product of ill repute which people avoided whenever possible.

This briefly was the situation confronting the present health officer, Dr. J. D. Dowling in 1920 who in spite of vigorous opposition on the part of raw milk dealers and certain political forces in the city, succeeded in bringing about the enactment of a milk ordinance in July 1921. This ordinance in its adaptability to meet local conditions and the fairness of its requirements and standards possibly ranks second to none among milk ordinances of this country.

Some of the developments in Birmingham in connection with the control of the city milk supply during the past fourteen months are interesting. At the instigation of the health officer during the current year, \$30,000, an appropriation of approximately 15 cents per capita is being used for milk control. The milk control staff, including two laboratory assistants, has been increased to ten, of which five are Bachelor of Science graduates in agriculture, and one is a veterinarian.

Striking headway has been made in:

(1) Milk consumption per capita has increased 100 per cent. (2) The milk business is on a firmer foundation. (3) Organization of a producers' milk pool is completed which will increase the volume of milk pasteurized from its present figure of 15 per cent to over 80 per cent. Modern requirements in sanitation and milk hygiene, which necessitate better business methods, have been instrumental in bringing about this movement. (4) A thorough system of grading milk is in vogue. (5) The average bacterial content of market raw milk has been reduced from 780,000 per c.c., which was the average for a period covering three years before the adoption of the present milk ordinance, to an average now well below 50,000 per c.c. (6) The average bacterial content of pasteurized milk over the period quoted has been reduced from 217,000 per c.c. to less than 25,000 per c.c.,—below 10,000 for October, November and December.

(7) Milk scores are published monthly as a guide to the public. These scores are based upon sanitary condition of dairy premises, methods employed in handling milk, and the average bacterial and chemical composition of not less than three samples collected from each distributor.

(8) Over 140 sterilizers equipped with 4 to 6 H.P. boilers have been installed on dairy farms. Over 90 per cent of the dairies from which the Birmingham milk supply is derived score 80 per cent or over on the U. S. Department of Agriculture score card. Further improvements record-

ed during the past few months are New barns, 8; new milk houses, 7; barns reconstructed, 25; milk houses reconstructed, 28; new sterilizers equipped with 4 to 6 H.P. boilers, 20; new sanitary toilets installed on farms, 36; toilets made fly-proof, 52. (9) Price of milk has decreased 25 per cent within the last year. Milk selling at 20 cents in 1921 now sells at 15 cents.

Benefit to health brought about by increased consumption of clean milk cannot be estimated in dollars and cents. Money saved by the purchase of milk of better keeping quality can be more nearly gauged. A family in a city, where milk control is lost sight of, squanders 15 cents many times in a year on "sour" or watered milk.

Milk control is a necessity from a business standpoint. It was estimated at one time that 22 per cent of the Birmingham milk supply was adulterated to the extent of over 10 per cent added water. The citizens were paying \$58,000 a year for water that was added to their milk supply. Fifty-eight thousand dollars per annum for milk control to eliminate adulteration and have clean milk would seem the wiser course. If such an object can be accomplished for \$30,000 a year, all the better. This matter is best left to the health officer to decide. To do otherwise may be penny wise and pound foolish.

Remove from Political Control

Milk control, as all other branches of public health, should be organized against political interference. Most politicians at heart want a contented community. They usually have sufficient private interest in a city to desire its growth and prosperity, and yet politics, as played by some politicians, is frequently the most disturbing factor, and politics in a public health system is perhaps the most disconcerting.

Public health may be compared to public safety. They go hand in hand, for both are associated with the safeguard of human life. Quick growth and industrial expansion of a city depends in large measure upon the contentment and sense of security that can be instilled into the public mind, but a community will not be contented nor settled in a city which is unsafe or unhealthy. People look for an opportunity to break the ties that hold them to a place where mortality is high and lawlessness rampant. Some politicians do not realize this, but the public should, and demand that both public health and public safety be removed from politics. When this

is done milk control will perhaps find its proper place in public health policies.

Sanitation, control of communicable diseases, and infant welfare each holds, and should continue to hold, a very important position in public health administration. The milk question is so intimately associated with communicable disease and infant welfare that to ignore it or belittle its importance in a public health policy is to court disaster.

If the people of a community are well nourished they will be stronger and better able to fight off disease. Bringing about the observance of laws of sound nutrition should be one of the chief functions at the basis of public health administration. We must, therefore, have a clean, wholesome food supply to begin with. The consumption of more milk per capita is a starting point, for milk is our ideal food. But we must have safe milk before we can recommend its increased consumption. A city will not obtain a safe milk supply until steps are taken to systematize its control. This requires more adequate funds, better milk laws, improved organization, and common sense administration.

Dr. Charles A. Powers

In the death of its president, Dr. Charles A. Powers, the American Society for the Control of Cancer has suffered a great loss. He died from apoplexy at the University Club in Denver, December 23. The loss of a man of the caliber of Dr. Powers is particularly to be deplored in a field where success must depend upon highly specialized training, and a talent for organization.

As a Major in the American Expeditionary Forces, he was made Chief of Surgical Service, spending most of his time at American Hospital No. 1, at Neuilly, France. Following this service he received a citation from General Pershing as follows:

"By his professional skill he revolutionized the surgical treatment of faces mutilated by war wounds, demonstrating to the world how to restore them to normal condition, thereby rendering conspicuous service by this great contribution in saving the lives of many French and American soldiers."

Dr. Powers was already the possessor of the Belgian Order of Leopold, the French Legion of Honor, and the *Médaille de la Reconnaissance Française*. The Distinguished Service Medal was conferred on him by posthumous reward.

Interment was in Arlington cemetery.

State Milk Survey

THE milk survey has been used effectively during recent years as a means of community diagnosis and a basis for human betterment. Two outstanding conditions have been revealed as a result of these studies, namely, (a) the machinery for safeguarding the milk supplies of many communities is entirely inadequate, and (b) the per capita milk consumption on the average is only about one-half of what it should be.

One of the most extensive studies, on a state-wide basis, was made in Kansas, May-August, 1922, by the division of foods and drugs and the public health laboratory of the state board of health, assisted by city and county officials and the state dairy department. According to the November, 1922 *Bulletin* of the Kansas state board of health, this survey was conducted in twenty cities and towns for the purpose of determining the quality of Kansas market milk and consisted of chemical, bacteriological, and sediment examination of samples of milk collected from wagons, milk depots, stores, etc., and in most cases the inspection of the dairies producing the milk or the depots or pasteurizing plants distributing it.

A portable bacteriological laboratory field set, shipped from town to town and set up in suitable rooms provided by these towns, proved its usefulness. From the results of the survey it was concluded that "bacterial counts of not to exceed 100,000 for raw milk and of not to exceed 30,000 for pasteurized milk may be made the basis of the bacterial standard for any milk supply in this state." The detailed results of the survey, with suggestions and recommendations to the citizens and officials of cities, and to the dairymen and producers, were published in the state health bulletin as an aid to the formulation of proper milk ordinances and milk control in the cities under study.

The California Dairy Council, with the aid of the state board of education and the superintendent of public instruction, and the cooperation of city superintendents, have conducted another type of milk survey to determine the number of school children who drink milk and to test the connection between milk and the progress of the school child. The supplemental report of the California school milk survey published by the California Dairy Council points out that practically uniform results were so-

cured in all the eight cities surveyed and approximately 130,000 pupils answered the questionnaire. Although the percentage varied in the different cities, the grand total of the entire survey showed that 41.82 per cent of the children received no milk regularly, 32.55 per cent received a glass of milk daily, and 25.63 per cent a pint or more daily.

The survey in Los Angeles was most complete and covered 150 schools and over 50,000 cards. Children numbering 35,384 were carefully weighed and measured and their school progress noted in connection with their age. Outstanding among the facts in this survey are the following: 4.38 per cent of the children receiving no milk were found to be over the average graduation age, while only 1.38 per cent of the milk using children who received one pint daily were over this age. 8.8 per cent of the children receiving one pint or more of milk a day, 7.9 per cent of those receiving one glass of milk a day and 6.5 per cent of the non-milk-drinking children were ahead of their normal grade.

While there may be certain inherent factors which are responsible for some of these differences and conclu-

sions should be formulated carefully, it is instructive to have such complete information of a large school population group, and it is undoubtedly true that nutritional factors, in which milk plays an important role, are of immense importance. It is also clear in general that "milk-using children can be forced in their school work with less ill effect upon their height and weight than non-milk-using children."

San Francisco to be Mecca of Medicine in June

San Francisco will be the Mecca of the medical profession in June when eight national and district conventions will be held there. American Medical Association will convene June 25 to 29; between June 21 and 30 American Society of Tropical Medicine, Radiological Society of America, and American Radium Society will assemble; California State Medical Association will meet June 22 and 23.

Automobile caravans from eastern points to San Francisco are being planned by the committee on arrangements at convention headquarters of the A. M. A. Dr. W. E. Musgrave, 806-9 Balboa building, San Francisco, is chairman. The committee will arrange sidetrips for convention delegates upon request.

A Traveling Laboratory



Courtesy Michigan Department of Health.

To aid in the protection of its summer guests, the Michigan department of health sends out a field unit consisting of a traveling laboratory with a sanitary engineer in charge, assisted by a bacteriologist, a good inspector, and a general assistant. The interior of the motor laboratory is shown above.

Genetics and Its Relation to Eugenics

Outbreeding of Defectives Does Not Improve Racial Stock

By P. W. WHITING, CHILD WELFARE RESEARCH STATION, STATE UNIVERSITY OF IOWA, IOWA CITY, IA.

IT IS now over a half a century since Gregor Mendel, a monk of Austria, after working eight years with simple character differences in garden peas, brought forth the law of heredity which bears his name. Despite the fact that for thirty years after its publication this law was unrecognized by the scientific world, the work accomplished since its re-discovery in 1900 has been so extensive and the results have increased with such acceleration that even a geneticist, a specialist in the field of heredity, is unable to keep pace with the various advancing phases of investigation.

Mendel's simple law of "unit-character" inheritance may be illustrated by two examples chosen from the writer's work. Tabby-cats frequenting any street or back yard fence can without exception be classified as either striped (Fig. 1) or blotched (Fig. 2). The difference consists essentially in the widths of the alternate bands of light and dark color running transversely down the sides and longitudinally down the back. Each of these types may vary considerably in intensity and shade of coloring and such differences as An-

"In the investigation of human heredity we are limited by long generations, few offspring, and inability to control matings. Isolation of human genetic factors is therefore usually impossible for only the more marked differences can be traced without confusion."

"From the viewpoint of racial improvement the advantages of bringing to the surface both good and bad traits cannot be questioned. The human custom of continuously outcrossing tends to keep these latent characteristics hidden. Individuals are thus spared, but the race is not fundamentally improved."

gora fur and white spotting may obscure the character to greater or less extent. In yellow cats the striped or blotched condition may usually be seen while in black and maltese it exists as a "ghost pattern."

It has been found by breeding tests that blotched when crossed to blotched will produce only blotched, while striped by striped may produce, not only striped, but occasionally blotched as well, in which case it is evident that both of the striped parents have blotched in their ancestry and are carrying it as a recessive. Blotched, the recessive, can never carry striped. Pure striped cats by pure blotched will produce all striped offspring each of which carries blotched, the recessive. Striped is then a simple character difference from blotched, its recessive alternative. There is no overlapping variation, no intermediate between striped and blotched, and we have here a simple Mendelian unit character difference.

This case is paralleled by that of the Mediterranean flour-moth, a destructive cereal pest. The common gray form (Fig. 3) acts as a simple dominant over the black mutant variety, (Fig. 4), which occurred in the writer's cultures. Black breeds true, as does also pure gray, but gray by black produces cross-bred grays similar in appearance to pure grays but giving, when bred together, three

gray to one black, or when bred to black, one gray to one black.

From these ratios the principle is derived that in the germ cells, the reproductive elements of males and females, there occur genetic factors or genes which are passed down unchanged from generation to generation, except for a very occasional mutation. Thus in pure grays the germ cells can carry the factor for gray only, in black the factor for black only, while the cross-bred or heterozygous grays would produce two sorts of germ cells as regards these color factors, one half carrying gray and one half black. Here segregation occurs. No germ cell can carry both factors which act as alternatives to each other. When crosses are made these factors are recombined by fertilization in proportions similar to those in matching two pennies. Cross-bred gray male and female would each produce two kinds of gametes in equal numbers, those carrying black and those carrying gray. The chance of black meeting black is one out of four, of gray meeting gray the same, and of black meeting gray two out of four. The offspring, therefore, would consist of black and gray



Fig. 1. Striped Cat



Fig. 2. Blotched Cat. In mating pure striped with pure blotched, all striped offspring each carrying blotched, the recessive will be produced. This illustrates a simple Mendelian unit character difference.

moths, one-fourth black, one-fourth pure gray, and one-half cross-bred gray, indistinguishable from pure gray except by breeding tests.

As in the cats, there is much variation within each color type and this variation is to a large extent at least

the consciously directed breeding check was unobtainable. Naturally those who knew most about human differences—the anthropologists and psychologists—were unconvinced, and rightly so. Gradations in form and color, as well as in the complex mental

act as a simple unit-character recessive, but in other cases modifying factors come in or the unit which determines the defect in one case may not be the same as that which determines the defect in another.

Every psychologist knows also that feeble-mindedness exists in all degrees. Surely such types as extreme idiots or imbeciles should not be classed with morons; and morons grade from the lowest type to the so-called border-line cases, or in other words to normal. Only by consciously directed breeding tests can the number of factors involved here be determined, and such tests cannot of course be applied.

While psychologists and anthropologists, then, have been leveling just criticism at the Mendelians, the latter have continued their studies. A very extensive series of experiments on rats has been carried out by Professor Castle of Harvard University. It had long been known that a certain color variety of the common rat, known as hooded, acts as a simple Mendelian recessive to the solid colored wild type.

Hooded rats have a pigmented spot on the head and this is continued to greater or less extent down the back. For the rest the animal is white. Wide variation in the extent of this pigmented hood was noticed, grading from relatively narrow to wide. Selection and in-breeding not only showed these differences to be hereditary but increased the total range considerably. Crosses of hooded with solid color showed the gametes of the hooded to be modified, "contaminated,"



Fig. 3. Gray Flour Moth.

hereditary. Gray moths, for example, if inbred, separate into true breeding types with minor differences. Some are more or less brownish or buff, others pure black-and-white gray, while still others have the base of the wings black in various degrees. Cross bands and markings vary in position and extent, but each type in its own line breeds true.

Hereditary Differences

Clearly then these differences are hereditary, but they can hardly be called unit-character differences. One would not be able to draw any line between this or that type after crossing, but all gradations occur. Unit-character differences may be traced to unit factor differences in the germ cells or gametes, and indeed to particular elements of the gametes, the chromosomes. Complicated systems of linkage have been discovered between factors, couplings, and repulsions, interference of one degree of linkage with another, and from the whole matter it is possible to build up on a purely abstract basis a system quite as intricate and yet as logical as that of chemistry. This system, moreover, derived from critical crosses and counts determining ratios in the offspring is exactly paralleled by microscopic studies of the number, size, and distribution of the chromosomes in the gametes.

In the first flush of rediscovery of Mendel's law in 1900 and for a few years thereafter, all describable differences in man, plants, and animals were thought by various groups of over-enthusiasts to be unit-character differences. This was especially true in the case of human heredity where

and emotional types, represent character differences to be sure, and very likely hereditary differences, but they are obviously not units.

Feeble-mindedness, retardation in mental development, has been represented as a simple unit-character difference acting as a recessive to normal mentality. Matings of feeble-minded with feeble-minded should then produce only feeble-minded, while matings between normal persons, each of whom has one feeble-minded parent, should produce on the average three normal to one feeble-minded. A normal from good stock mating with a feeble-minded should produce only normal, but these carry the factor for feeble-mindedness, and



Fig. 4. Black Moth.

Common gray moth acts as a simple dominant over the black mutant variety.

will produce an average of one feeble-minded to one normal when they mate with feeble-minded. It may be said that in general this conception works out well, but there are some puzzling exceptions. It is very likely that in certain cases mental retardation may

with factors introduced from the solid so that the hooded rats appearing in the second generation did not have the same grade of hooding as the originals. Had the main factor itself been modified, or was there merely exchange of other stable factors to

modify the composition of the gametes and therefore grade of hooding? The matter was debated long and ardently, but eventually the weight of experimental evidence has favored the theory of supplementary modifying factors.

It has become clear that the Darwinian principle of continuous and gradual change in the production of new types is not invalidated by Mendelian work. For if mutations are rare and discontinuous as regards any one factor, numerous factors and small but discontinuous mutations will suit the most orthodox Darwinians and are apparently approved by the most progressive Mendelians.

In order that fundamental experiments in genetics may be conducted the form chosen for investigation should have rapid generations and be easily manipulated. Since ratios play an important part in genetic work, large numbers of offspring from individual matings are also essential for exact determination of principles. If small numbers only are available much has to be inferred for scientific confirmation is lacking.

The writer has for several years been working with a small insect, the parasitic wasp, known to entomologists as *Habrobracon brevicornis* (Wesmael). This insect (a male of which is shown drinking from a drop of honey in Fig. 5), is about three millimeters in length, and produces a generation in ten days when bred in the incubator at thirty degrees centigrade.

Constant temperature is indispensable for a determination of certain types of heredity since it has been shown that temperature changes produce variation not only in expression of characteristics but in their method

of hereditary transmission as well. Shell vials are used as culture bottles which may be labelled and recorded with corresponding numbers in note books. Female wasps parasitize the caterpillars of the Mediterranean

flour moth (Fig. 6) upon which the maggots feed and grow (Fig. 7). The shrivelled caterpillar remains are then abandoned and cocoons are spun (Fig. 8).

What is known as chance in development has long been more or less

considered excellent material for a study of these factors under controlled conditions. It is hoped ultimately to apply these laws to the formation of glands governing instincts in which there appears to be much variation within the wasps.



Fig. 6. Female wasps parasitize caterpillars of the Mediterranean flour moth.

tacitly recognized by geneticists but has never been made the subject of definite experiments. Dr. Sewall Wright of the Bureau of Animal Industry of the United States Department of Agriculture, working with irregular types of spotting in mammals has devised a method for estimating the relative effect of these chance factors. External environment as well as heredity may be practically constant and yet there may be considerable variation in certain characteristics due perhaps to some slight variations in rate of growth in different regions of the embryo. Relation to gravity, slight differences of pressure on different parts, momentary variations in oxygen supply at critical periods, probably have considerable influence in determination of certain ultimate qualities or characteristics of the fully developed form. These in-

The value of genetic research as related to agriculture and stock breeding has been frequently pointed out. Selection has always played an important part in the development of new strains, and crossing of types, each of which have certain desirable characteristics which the others lack, may be followed by inbreeding, selection and crossing again. One who is conversant with genetic principles may here save much time and expense by making test crosses which will reveal the hidden constitution or latent characteristics of his material.

There is an idea common among stock breeders that, in selecting for a certain quality or characteristic, the stock which reveals this in its highest development should be the only stock retained and all others should be discarded. Such a view is pre-Mendelian in that it does not recognize the principle that various Mendelian units may be combined in one stock and that some of these units can often be obtained from strains in which the characteristic desired is poorly developed. In other words more rapid and economical progress can sometimes be made by crossing a better stock with a stock that is apparently inferior than by continuing selection in the superior stock alone.

A certain type of variation in the parasitic wasp evidently depends upon several different units and the attempt is being made to analyze these units and combine them in various ways to illustrate the practical advantage of the Mendelian principle above stated.

In the investigation of human heredity we are naturally limited by many considerations, such as long generations, few offspring, and in-



Fig. 5. This wasp which produces a generation in ten days offers good material for hereditary experiment.

fluences are for the most part so numerous and intangible that they cannot be dealt with individually, but their collective effects can be estimated by the laws of chance. In certain respects the parasitic wasps are con-

fluences are for the most part so numerous and intangible that they cannot be dealt with individually, but their collective effects can be estimated by the laws of chance. In certain respects the parasitic wasps are con-

ability to control matings. The isolation of human genetic factors is therefore usually impossible for only the more marked and rare differences can be traced without confusion. On the practical side of the matter there is an occasional value in knowing that a certain undesirable trait is recessive and may be covered up if one's mate be selected from a family free from it. The children are saved but the trait is likely to be passed on and no real racial advance is made.

In reference to these latent or recessive defects the subject of cousin marriages may be mentioned. Cousin marriages are not racially harmful. Two cousins, each carrying as recessive the same hidden defect may produce children "homozygous" for it, that is, showing it. If each of the parents had married into strains free from it their children would still have possessed the defect although it would not have appeared. This holds true as well for admirable characteristics as for harmful ones and explains the fact that cousin marriages have produced geniuses as well as idiots. From the point of view of racial improvement the advantages of bringing to the surface both good and bad traits cannot be questioned. The human custom of continuously outcrossing tends to keep these latent characteristics hidden, each strain introducing dominant factors partially wanting in the other. Thus individuals are spared, but the race is not fundamentally improved.

Our keenest interest and perhaps the most practical problems center not about unit-character differences in man but about those more complicated types of heredity expressed in continuous and irregular variation. Considering such human characteristics as resistance and susceptibility to disease, variations in physical and mental endurance, initiative, industry and ambition, emotional stability and power of application, capacity for accurate or abstract thought, what we most want to know is not the exact nature of the hereditary mechanism, but simply to just what extent these conditions are dependent upon heredity and to what extent they may be controlled by environment. From a eugenic point of view, the question as to the exact number and linkage relationships, of factors responsible for susceptibility to tuberculosis is of no great practical value. It is sufficient to know to just what extent heredity is actually responsible.

Now with all the difficulties attending the Mendelian analysis of human heredity, we have in identical twins

the possibility of a very accurate measurement of the relative influence of hereditary and non-hereditary factors. Identical twins, coming as they do from one and the same fertilized egg, are endowed with exactly similar hereditary nature, barring, of course, the rare but possible occurrence of



Fig. 7. Maggots feed and grow on the caterpillars.

mutation. In fact, so complex is human heredity and so many are the factors doubtlessly involved, that it may be said without fear of contradiction that identical twins are the only people in the world with the same heredity and that no one else will ever meet his genetic double. Beginning then with a pair of twins known from the birth evidence to be identical, we may study their growth, mental and physical, their resistance to disease, or any of their serological reactions, their likes and dislikes, temp-



Fig. 8. Shriveled caterpillar remains are abandoned and cocoons spun.

eraments and interests. Whatever differences we find we may put in the non-hereditary class, as far as this particular pair of twins is concerned. Although a similar difference may in two other people be in whole or in part determined by heredity, we have here in identical twins practically ab-

solute proof of non-genetic difference and the best point of attack for the determination of relative influence of heredity and environment in the most complicated characteristics. The remarkable similarity of identical twins has been often noted, a proof of the importance of heredity.

The complicated nature of human heredity should not then, invalidate the eugenic program. Though we will be for generations and perhaps always ignorant of human hereditary mechanism, much may be inferred from experiments with lower forms. Once we suspect that any type of character variation is due to heredity, we have in selection a seemingly all-powerful method of eliminating the undesirable and increasing the desirable qualities. The newspaper eugenic ideal, represented as a sort of healthy stolid mediocrity, is not and cannot be the goal of consciously directed human evolution. Multiplicity of types abound and should likewise abound in a world of men far better than the present.

The application of the principle of selection is an educational, a social and economic, perhaps even a political rather than a genetic question. What may be called the negative phase, the prevention of the most degenerate types from reproduction is quite clear. Whether this is to be brought about by isolation or sterilization is a purely technical matter depending upon expediency. The result eugenically in either case is the same. But eugenic progress would be painfully slow, if this negative aspect alone were practised. Positive methods of encouragement of superior types to the greatest possible extent is the only method which will result in any perceptible advance.

The Joint Committee on Welfare Agencies, consisting of representatives from New York State Chamber of Commerce, Merchant's Association of New York, Brooklyn Chamber of Commerce, Queensboro Chamber of Commerce and Bronx Board of Trade, after two year's study recommends creation of a welfare council composed of delegates from groups of agencies in which all the agencies in all the boroughs of the city will be represented. Representation by functional groups of agencies rather than individual representation from each agency is considered more feasible. Such a council would be a clearing house for welfare information and the promotion of common activities, and would assist in welding together the social forces of the entire city.

Municipal Zoning and Health*

By C. V. CRASTER, M.D., HEALTH OFFICER, NEWARK, N. J.

ALL good Americans hope for a future existence in Paris, but most of us do not wait for this reward in the hereafter, making the city our Mecca in this life if we can. However much Paris attracts by reason of its social life, its spaciousness and beauty of its public spaces and buildings have appealing force. The Paris of today is the result of a considered and scientific plan first conceived by Louis XIV and carried to final accomplishment by Baron Haussmann under Napoleon III at a cost of \$265,000,000. City planning upon such a scale as this did not readily appeal to the world except Germany, which felt the need of scientific planning for its rapidly growing industrial centers.

In America, city planning and development were left largely to chance partly due to the feverish growth of business and industries and in building great American centers of industry little or no attention was paid to future needs of the infant cities. This was all the more remarkable as the wisdom of city planning had been recognized in this country during the early years of its existence. In laying out the City of Washington the first president engaged the services of a French engineer, Major Charles L'Enfant, whose plans brought into being a capital city which by the logical and beautiful arrangement of its streets, avenues, and buildings became a model for new world city planning.

With the exception of the modified gridiron plan adopted for American streets, cities of America were allowed to develop by haphazard methods. A riot of disorder in city building resulted. The future growth of our cities will be much slower than in early years which makes possible adoption of plans to retrieve damage and to bring order as far as this may be possible without too great upheaval and expenditure of vast sums as in wide schemes of city planning and re-creation.

This substitute for city planning is called zoning. Although it does not take the place of city planning the two are interdependent. While zoning cannot rectify past mistakes to any great extent, it is a conscious, intelligent effort to direct future building of the city on a well considered

plan. Like good housekeeping it provides a place for everything. Like good industrial management it plans for orderly growth and expansion of the plant. Zoning requires each owner to use his property so as not to injure his neighbor. Inasmuch as in every city there is a more or less definite tendency in building leading to segregation of residential from business and factory locations, it is the function of zoning not to prevent arbitrarily this natural grouping but to aid and guide it in the best direction. By dividing city areas into residential, business, and industrial districts, zoning seeks to encourage natural development. It protects residential neighborhoods from invasion by public garages and undesirable business enterprises. It safeguards business zones from heavy or light manufacturing and from location of nuisances in their midst. It gives manufacturing zones protected and assured tenancy.

Is Zoning Constitutional?

Municipal zoning had first to receive sanction of state legislatures which by enabling acts of various degrees of latitude authorized passing of city zoning ordinances. In all zoning laws the basis of their constitutionality is apparently contingent upon police power—the necessity for protecting health, safety, and general welfare.

Police power can be employed for zoning as well as for uniform sanitary and fire protection laws but it must be employed in relation to public health, safety, morals, and general welfare. If applied arbitrarily or for esthetic or purely sentimental purposes or with unjust discrimination the courts will not uphold the ordinance.

In two recent decisions rendered by the supreme court of New Jersey, in one case forbidding the building of multi-family houses in residential zones, and in another the fixing of a minimum height of buildings, the opinion was adverse to these ordinances, as not being in the interests of health, safety and welfare. In the former case the court ruled that limitation of the number of families permitted in a given district must be based on a certain ground area per family, and that multi-family houses could not be prohibited regardless of the size of the lot on which they were built. In the latter instance the or-

der of the court stated "you can keep a building down but you can't make it go up."

Where a zoning ordinance does not fundamentally rest upon these three great considerations it loses its authority for enforcement under the enabling act which governs the constitution of all zoning ordinances.

How far do these zoning acts concern health, either directly or indirectly? The Newark zoning ordinance may be taken as representative of this class of legislation. Newark is zoned, by the act, into four "use" districts, residence, business, light industrial, and heavy industrial. The residence zone is confined to dwelling houses but allows the establishment of professional offices, such as physicians, dentists, or musicians provided they are situated in the same dwelling or apartment. Provision is also made for hotels, churches, hospitals, clubs, philanthropic institutions, and other strictly non-business uses. All business and manufacturing is prohibited in the residence zones, so that the establishment of such undesirable businesses as public garages are automatically excluded. The business zones specially exclude all public garages except after a hearing, or any kind of manufacturing other than the manufacture of products sold at retail on the premises.

Industrial districts permit all kinds of manufacturing, including public garages, except certain specified industries which produce conditions injurious to health and comfort by reason of odors, noise, gas, or smoke. Industries of this nature are confined to the heavy industrial districts. Heavy industrial zones are located in outlying sections, as far as possible from residences of the bulk of population. Here are located the nuisance industries such as chemical manufactures and slaughterhouses. Residences cannot be built in these heavy industrial areas, the reason for which is stated by Swan as follows: "The very reasons that make it desirable to exclude factories and nuisances from residence districts apply with equal if not greater force when it comes to prohibiting erection of new dwellings in districts set aside for industrial development. If it is unhealthful for people to live near a factory isolated in residence districts it is all the more unhealthful for them to live in a home isolated in an industrial district."

*References: International Journal of Public Health, Vol. 2, No. 5, September-October, 1921, G. Benoit-Levy, p. 478. American City, July and September, 1918, August and October, 1919, and January, 1920.

In addition to the "use" districts there is a further division of the city into height zones which vary from 35 feet in residence neighborhoods to 150 feet in business or industrial localities. No building is allowed to exceed the height prescribed in the zone limits. This allows more air and light in those zones more generally devoted to residential purposes. It also secures uniformity of development and places additional safeguards against freak architecture.

An important feature of city zoning is the restriction upon area, that is, regulating and outlining the area of yards and courts and other spaces around buildings. In the Newark ordinance five "area" districts are established in which the requirement for air space is defined. This section of the law defines rear yards, side-yards, and courts and requires that "except as otherwise provided in this article every room in which persons live, sleep, work or congregate shall have at least one window or ventilating skylight opening directly either upon a street or upon a rear or side yard, outer or inner court, upon the same lot." The area districts define the amount of each lot which can be used for building purposes. This occupied area varies from 35 per cent of the lot for residential sections to 90 per cent for inner lots in industrial zones.

Another important restriction upon the area districts is the number of families permitted per acre of land. This is a wise safeguard against overcrowding and makes for more even distribution of dwellings as well as discouraging the building of multiple family dwellings upon certain areas. The number of families permitted ranges from one hundred and forty per acre in the mixed districts to twenty-five families per acre in more select residential zones.

Newark's ordinance further makes provision for the creation of a board of appeals to administer the law. This board is made up of the superintendent of buildings who is chairman, chief engineer, inspector of combustibles and fire risks, health officer, and president of the tax board.

Municipal zoning based on these principles is a municipal effort to serve the public for such a law has clearly a civic function and comes well within the requirements of protecting the health, safety, and welfare of the citizens. For health it limits congestion of population, secures better home surroundings by removing noisy and odorous businesses from residential sections, and assures proper light and ventilation in the home. It aids

the city in its fire hazard and building regulations by removing dangerous businesses to outlying sections and providing better restrictions on type of buildings. By protecting the property owner from undue depreciation of property values through unwelcome businesses or buildings, and by developing certain definite districts for various buildings or businesses, it raises property values.

The economical feature of zoning is now conceded by business men and its further value in solution of traffic problems is not to be disregarded. An attractive point for the tax payer is that such an ordinance can be passed and administered with slight expense. General adoption of these measures is therefore desirable as a first step in city planning, and cannot but make for marked improvement in the health and happiness of city populations. It is the logical reply to the modern demand for order and improved supervision over city building and development.

Garden City Examples

The garden cities of Europe are of course not possible of general adoption. The remarkable results obtained however, in the garden city of Letchworth, England, might well be studied and methods applied to American cities. In this industrial city with an area of 3,800 acres and a maximum population limit of 35,000 no dwelling can exceed two floors in height nor occupy an area of more than 25 per cent of the lot. Overcrowding thus being impossible and fresh air and sunshine available everywhere, it is not surprising that statistical rates of such a community are startling. General mortality is 5 per thousand living, and the birth rate 30 per thousand.

In city zoning as in city planning the main purpose should be to help build a city in which the citizens shall live under more pleasant and healthful surroundings than is possible where no directing plan is available to bring order out of disorder.

A program for the completion of five new hospitals before the Summer of 1924 for the use of the Veterans Bureau in caring for former service men suffering from nervous and mental diseases, has been announced by the Construction Service of the Army Quartermasters Corps. The hospitals will care for 2,000 new patients and provide quarters for 800 officers, nurses, and attendants. They are at Northampton, Mass., Chillicothe, Ohio, Knoxville, Iowa, American Lake, Wash., and Camp Custer, Mich.

Richmond Achieves Striking Statistical Results

The annual report of the bureau of health of the department of public welfare, Richmond, Va., presents evidence of concrete achievements in the control of disease perhaps as striking as those which could be reported from any other city in the United States. The crude death rate has fallen from 23.4 in 1907 to 14.6 in 1921, tuberculosis rate from 221 per 100,000 in 1906-1910 to 120 per 100,000 in 1921, and the infant mortality rate from 213 in 1907 to 100 in 1921. Rates for the year 1921 of 5.7 per 100,000 for typhoid fever, of 9.7 per 100,000 for diphtheria, of 39.3 per 100,000 for diarrhea under two, represent a really brilliant achievement for a southern city with a large colored population. Measles and whooping cough still remain serious problems and figures presented in this report emphasize anew the importance of protecting infants against these diseases, since 53 per cent of all deaths from measles and 78 per cent of all deaths from whooping cough occur in Richmond in the first two years of life.

That the reduced death rates cited above are by no means accidental but result from vigorous and intelligent application of the best resources of public health science is known to all who have watched the development of the Richmond department under Dr. E. C. Levy, first health officer and later director of public welfare, and under Dr. C. C. Hudson, the present health officer. The 1921 report indicates that the Richmond department is still developing along the most aggressive lines. Consultation service for tuberculosis, systematic Schick testing and immunization of preschool children, and organized prenatal and infant welfare work form outstanding elements in the program.

General manager C. L. Bardo, of the New Haven and Central New England Railroads announces that as soon as details can be worked out the 7,000 employees in the mechanical and electrical transmission and communication departments, together with their dependents, would be protected under a huge group policy involving nearly \$7,000,000 of life insurance. The policy includes, in addition to the life insurance, accident and health provisions. The cost of the insurance to each employee will be sixty cents a month per \$1,000 of life insurance and seventy cents a month for accident and health.

Habit Clinics for Child Mental Problems*

The Misunderstood Asocial Child Often Undermines Foundations of Family Life

By DOUGLAS A. THOM, M.D., DIRECTOR, DIVISION OF MENTAL HYGIENE, BOSTON, MASS.

CLINICS recently organized dealing with mental life of children of pre-school age, found stimuli for their inception in two distinct branches of medicine. Pediatricians, having exhausted all ordinary and many of the extraordinary measures available in medicine to combat the varied problems presented in the daily life of the child, all too frequently found that success was not obtained by treating the child's stomach for indigestion or his bowels for worms or his bladder for irritation. They appreciated the fact that his tempers and terrifying dreams were not problems of simple mechanics, and the solution of many of his problems was much too obscure and intricate to yield to therapeutic measures on a physiological level. Pediatricians, therefore, naturally turned to psychiatrists for assistance.

The psychiatrist has for a long time recognized the importance of the childhood period in the development of personality. Frequently conflicts and maladjustments of adult life have been traced to experiences of childhood. The psychiatrist realizing the value of recognizing maladjustments at four instead of at forty, was quick to grasp the opportunity of observing and studying the effect of the struggle for existence on the mental development of the child.

Clinic's Twofold Function

In his study the psychiatrist was confronted with two distinct functions of the habit clinics,—research into the psychology and psychopathology of the mental makeup of the child, and the effect of both internal and external forces upon its development, and, second, the treatment of numerous and varied clinical conditions referred by physicians in the fields of medicine, *e. g.*, bed wetting, thumb and finger sucking, persistent vomiting, refusal of food, terrifying dreams and night walking, masturbation, tempers, and various types of delinquency.

To avoid the impression that either psychiatry or psychology is a panacea for all ills to which the human flesh is heir, it must be explained that

every child seen at the habit clinic has had a thorough physical examination and has been under the care of the pediatrician and other specialists since birth. Such is the scheme under which the baby hygiene clinic operates, so that what we find in our examinations invariably represents the residue of symptoms after organic causes have been removed within the limits of modern medicine and surgery; and it is only by operating as part of well equipped medical organization that such clinics can hope to function successfully. It is perhaps a bit more pathetic to see an organic case being treated by measures which could only be successful in psychogenic cases than vice versa.

The term "habit" was selected to designate the type of clinic which we desired to organize as it was quite free from any of the undesirable associations which exist in the minds of many with the terms mental, psychic, nervous, etc. Then again, habits are so much a part of the individual that every study of personality must necessarily include habits. In fact, a study of the individual's habitual reactions is a study of personality. John Dewey states, "All habits are demands for certain kinds of activity, and they constitute the self." Habits are commonly termed bad if in the long run they operate to the disadvantage of the individual. We are prone to think of habits as something outside ourselves and foreign to our own individuality, something that has crept into our lives not only uninvited, but frequently forbidden, and we therefore assume no responsibility for their presence. Yet, as Dewey points out, "It has the hold upon us because we are the habit." Habit and desire cannot be separated.

We are not sailing over uncharted seas in the establishment of the habit clinics, but are following closely the excellent work of Drs. Campbell, Healey, Glueck, Adler, and Anderson. This unit concerns itself only with children of pre-school age. It operates in the community in which the children live in association with organizations such as settlement houses which the parents have been educated to utilize and in which their confidence has been well established. It is

closely affiliated with a very highly specialized medical organization and is not an isolated unit interested in only one aspect of the child's life. These factors will eventually operate to bring about results from the clinic which will establish its value, not only to the city of Boston, but throughout the country, it is believed.

To bring to your attention some of the definite problems it seems best to use case histories to illustrate points at hand.

Nine Year Old's Case

A few months ago a nine year old girl was brought to the clinic by a worker from one of the societies interested in children, for two definite reasons, first, because of convulsions which resembled epilepsy, and secondly, because of her precocious sex interest and sex delinquencies which had begun when the child was between five and six years of age. The episode that brought the child to the attention of the society mentioned, was the finding of an obscene picture by the patient's teacher.

Physical findings were negative except for a positive tuberculin test and the spells which resembled petit mal attacks. The gynecological examination which was made on account of the social history, indicated a certain amount of irritation of the genital organs. The child was well developed and nourished.

Mental findings graded the child one year above her mental age, which gave her an intelligence quotient of 111 on the Stanford scale. She was much interested and entered eagerly into the spirit of the tests. She graded uniformly except for particularly good rote memory and practical judgment which was below her mental age. She is in the third grade at school and capable of doing work that is above the average. The teacher considers the child very bright, but at times she states that she appears extremely dull and absent-minded.

The parents state that the patient has immoral habits, that she never seeks girl friends but is always in the company of boys and has immoral relations with them. In 1920, the child was found in a cellar with several boys of her age in what was said to

*Read before Boston University School of Education, October 9, 1922.

be a compromising position. No information was obtained regarding the grandparents of the patient, but the father is said to be a fine self-respecting man who is making every effort to do all he can for the welfare of his family. Patient's mother died four years ago, was an epileptic, and a very marked hypersexual individual. She died at the Psychopathic hospital in 1918 from toxic psychosis. The patient's father was married the second time and the stepmother seems to be a woman who is kindly and affectionate toward the child and interested in her welfare. She, however, receives but little support and encouragement from the three older married sisters in the family in matters of discipline concerning the younger children. She has found the situation impossible, and a separation has resulted, not because of any difficulty with her husband, or of inability to meet the ordinary problems concerning her household duties, but on account of the conduct of the patient, and the lack of support she receives in making any effort to change this conduct for the better.

The patient until recently lived at home with her father, stepmother, and brother John, aged 13, who attends the eighth grade. He is said to be quiet, but indulges in petty stealing, and has been arrested twice, but never sentenced. There are three older married sisters who continually interest themselves in the father's household much against the wishes of their stepmother and probably to the disadvantage of the home. The father states that none of his children have seemed normal. He has always had difficulty in bringing them up. They were delinquent, misbehaved, and had bad reputations. On the whole, there seems to be nothing obvious in the immediate household which would account for the delinquent tendencies of the children.

For the past three years, the child has interested herself in boys, although from her story she has not excluded girls as companions in her erotic indulgences. From the history it is felt that patient has been more of an influence on the environment than the environment has been upon her. The father states that since the child was three years of age she has shown an abnormal interest in sexual things and has been quite aware of her own sex feelings and how to stimulate them. When returning from the moving pictures, it seems that she remembers nothing but the sensuous aspect of the picture, frequently fabricating and interweaving

situations which have no foundations. Patient has been found on several occasions in a cellar of an unoccupied house absolutely nude with three or four boys of her own age. She tells her father in detail of what has happened, and evidences no sense of shame in speaking of the active part which she has played in these episodes.

Secure Child's Cooperation

In the doctor's office she answered all questions frankly and showed herself an extremely precocious individual having an intimate knowledge of sex affairs which could have their basis only in personal experience. She made no effort to minimize her part in these unhappy events, but expressed voluntarily a desire to overcome these hypersexual tendencies. She discussed the entire situation without embarrassment, went into minutest details, discussed her innermost thoughts and her dreams in an interesting and enlightening way. She appreciated the effort that she must make in order to overcome the cravings and desires responsible for her past difficulties. She was also anxious to develop other interests to substitute for her erotic day dreams. At no time did she blame others for her trouble, and stated that she was extremely anxious to overcome her undesirable habits in order to make it easier for her stepmother, to whom she was apparently very much attached.

The foregoing case presents two definite problems for solution, first, the convulsive tendency, and second, the precocious sex interest and sex delinquencies. Physical findings in the case are essentially negative. Mental findings indicate that the child has more than ordinary intelligence. The teacher considers her bright. The delinquent behavior may be considered accidental in origin as being continued because of hypersexual cravings. Home conditions were not ideal, yet not sufficiently different to account entirely for the strain of delinquency found in this family. Associations were not better or worse than those found in the ordinary settlement district. Nothing stands out distinctly either in the mental makeup of the child, or in the environmental conditions which we can definitely point out as the exciting factor of her present difficulties. There is nothing to indicate what the future of this child will be, or what the effect of these particular sexual experiences is to have on her and the development of her personality.

What the effect of such a series of experiences upon the development of character and personality of the child, may be is open to conjecture. The cause or reason for that particular experience in this particular case at such an immature age may well be considered as environmental or accidental. The effect of such an experience will depend upon circumstances and conditions that are as much beyond the control of the child and quite as dependent upon "happenstance" for a healthy solution, as the primary experience was dependent upon mere accident. The fact that we are dealing with a child of rather high grade mental equipment who was a bit precocious in her interests other than those of sex, is indeed fortunate, for the unhappy event can be very well assimilated and digested by the child, minimized by the parents and perhaps turned to some good purpose. On the other hand, it may be repressed so completely as to lose its own identity entirely, but appear in some quite pathological condition or definite a-social act as this case apparently did with her hysterical episodes, or the experience may be rather imperfectly repressed and continually and persistently forcing its way into consciousness, producing disintegration of the personality, as is manifested in many of the psychoneuroses of the neurasthenic and anxiety types. From a physiological point of view, it is not difficult to conceive of such experiences as sensitizing the individual to subsequent emotional experiences of a sexual nature, producing a hypersexual individual, which may result in prostitution, homosexuality, or other perversions. Notwithstanding the fact that there may be this tremendous physiological sexual drive, it is not unlikely that such an experience would produce the psychological repugnance to things sexual, the two forces combating one another and resulting in conflicts which torment and incapacitate.

While the child is passing through these experiences she needs all the help and understanding that can be rallied from those having the case in charge. The family should be given as clear an understanding of what the child is going through as our knowledge and experience can give them in order to prevent insofar as possible the methods of one family in a similar case who told the child that if she did not stop masturbating she would go insane, that every one would hate her, and that people were beginning to recognize the effects of her bad habit in her appearance. It is perhaps

much easier to wait twenty years, and then begin philosophizing about the effect of such an early sexual experience and its relation to a nervous breakdown at that time, than to get a clear, concise picture of just what is taking place when the child is passing through the series of experiences, but there is no comparison between the real value of information gained while the forces are operating, and guessing fifteen years later what actually happened and how the mental mechanisms worked and the effects it may have had on the future development of the individual.

Case X Shows Parents' Fault

The following case X is to call attention to the fact that we not only have to consider what the parents have to contend with in bringing up children, but it is frequently necessary to consider what the children have to contend with in tolerating parents.

A woman about forty years of age brought her seven year old daughter to the clinic for examination, stating that she acted like a child of four years. Notwithstanding the mother's statements, she is unable to give any concrete examples of the child's immature acts. As far as could be obtained the child has no bad habits. She sleeps and eats well, is frank and honest, would like to be affectionate if the mother would permit her, shows no cruel tendencies, and about the worst the mother could say is, "She takes up with any child she can find, regardless of creed, color or nationality. I will not stand that." The mother states that she would not permit her child to associate with the Catholic children in the neighborhood, and that the Protestant children were not good enough.

The patient appeared to be a bright, keen, alert little girl, who answered all questions quickly and accurately and manifested an interest in the examination and her surroundings. In the psychological test, she graded high, having an intelligence quotient of 98. As far as the history from the mother and the examination of the child were concerned, there seemed to be but little evidence to indicate that the child was either abnormal or unusual.

The mother was interviewed again and it was ascertained that this child was not wanted, that the mother and father had been quite happy until the birth of the patient, and she was looked upon as a stumbling block in their happiness and economic success. The father's attitude toward the child

was one of indifference. He rarely gave her any attention at all. The mother states that she is not fond of her because the child is hateful and that she always makes the mother regret being kind to her. When the mother and father are together they both ignore the child and she is sent off by herself, though not permitted to play with other children.

Further investigation of the case by the social service revealed the following facts: The mother is looked upon in the neighborhood as being different, although very affectionate toward her husband. The neighbors state that it is not infrequent to hear the mother tell the child that she hates her. It was later ascertained that within a year of the time that the patient was born, the mother was looked upon as a very desirable neighbor. About this time she went away to live with a man who had been a boarder in the house, and only returned to her husband after the authorities made complaints. Shortly after her return, patient was born. Since that time, the whole social situation has changed.

The interesting and instructive lesson in these two cases is not the physical symptoms which were so obviously demanding attention that there could be but little chance of their being ignored, but the fact that our attention is forcibly directed to the immature tendencies directly related to the mental life of the child. One case cited presents a picture of some of the unusual conditions and circumstances under which children are reared.

The most common and objectionable conditions found in the parents might be grouped roughly under the following headings: (a) the over-solicitous; (b) quick-tempered; (c) rigid and righteous; (d) worried and weary by toil; (e) work-avoiding, pleasure-loving, duty-shirking; (f) mentally deficient.

Family Influence on Child

In a more general way, the moods of the parents, their quarrels, resentful attitudes, their depressions, manner of speech, timidity of the mother, arrogance of the father, self-consciousness of a younger sister, egotism of an older brother, and the favoritism directed toward one child, or the animosity towards another, all tend toward developing a mental atmosphere which would be unhealthy to imitate.

On the other hand, cheerfulness, affection, kindly consideration, cleanliness, order, manners and speech which

are kindly even if not correct, interest and attention to the questions of the child, frankness and honesty in answering questions which will conduce to a freedom of speech and action which is not inhibited by fear of punishment or silent contempt all play their part in the development of the personality of the child, which cannot be over-estimated. The environment is found to be mirrored in the character of the child more frequently than not. Undesirable habits, in order to be eradicated or dispensed with, must be replaced by some other interest. It is not sufficient simply to build up barriers which will thwart the desire and block the emotion that acts as a driving force. This force must find a new outlet in a way compatible with the environment and with the satisfaction of the child. The child should be led, not pushed. All too frequently it is the emotions that act as a stumbling block, rather than the intellect or the will.

Substitute for Bad Habit

In order fully to dispense with undesirable habits and to form new habits, it is of paramount importance to find a motive for the rejection of the old and the acceptance of the new, that is, to substitute something for the rejected habit. The idea of the new habit must be clear in the mind of the child. It must appear to the child as a thing capable of achievement. The advantages to be gained from the development of the new habit must be presented in such a way that satisfaction will come with the striving, as well as with the accomplishment.

There is the child handicapped by undesirable habits or asocial tendencies which become more fixed and elaborate, gradually but surely reaching out to incapacitate the child for meeting the problems of every day life. Such a child becomes the dominant time-consuming blot on the family, robbing the other children of their just rights. All too frequently, such a child is the source of delinquency, poverty, and misery in her home. These reactions penetrate and contaminate the very foundations of family life. It is the appreciation and the established knowledge of these facts that has led to the founding of the habit clinics, where we hope to meet these habits while they are in the making, and not after the clay has become firmly fixed. Our accomplishments will be quicker, better, and of far more importance to the individual and society if we can meet these habits at three rather than at thirty.

Tuberculosis Patients as Health Educators*

Discharged Sufferers May Become a Prophylactic Asset in the Community

BY ROBERT J. WILSON, M.D., DIRECTOR, BUREAU OF HOSPITALS, DEPARTMENT OF HEALTH, CITY OF NEW YORK.

THE spread of tuberculosis is entirely due to the failure of those who suffer from it failing to observe precautions of personal hygiene and regulations laid down by health authorities and sanitarians for its control. The difficulty in stamping out the disease lies in the fact that the information necessary to the intelligent observations of laws and regulations must be assimilated by the sufferers of the disease, who in turn must be the ones strictly to observe the necessary precautions laid down by the law.

These sufferers from disease represent a good many different classes of individuals—from those that are highly educated to the moron. These tuberculosis sufferers fall again into the following classes:

(1) Those who innocently spread the disease through ignorance of the regulations necessary for its prevention; (2) the fairly intelligent but negligent group of patients who indolently and selfishly fail to observe the regulations after they have been instructed in them; (3) the willful type of patient who although thoroughly familiar with the procedures necessary for the protection of the public breaks the regulations knowingly and in direct violation of law. There is but one way to reach these in order that the maximum amount of precaution will be observed by them and the stamping out of tuberculosis become an assured fact, and that is through education. The mode of administering education, however, must be as varied as required by the types of individuals concerned. If the cases are mentally deficient, they must be placed under supervisory control that prevents their association with the general public. If the patients are fairly intelligent as the large mass of tuberculosis patients are, it must be assumed that the regulations preventing spread are being observed. If the patients are of the negligent type, there must be some means provided for curing them of their negligence or they must be treated as a willful, dangerous type.

If they are of a willful type, then the law should be applied to them with all the strictness that it would apply to any other type of citizen guilty of criminal negligence in the failure to prevent or in the hiding of crime.

A great deal of unnecessary sympathy has been aroused for the willful type of tuberculosis patient. The general public should recognize that the willful type of tuberculosis patient is not being punished because he suffers from a malignant and distressing disease but for the fact that he has full knowledge of the necessity of protecting those with whom he associates and places them in the danger of their lives when he can easily prevent it. The willful type of tuberculosis patient is not punished for having the disease but for willfulness in refusing to obey the law.

In the process of education of the tuberculosis patients they naturally fall into two groups: those who readily interpret the laws and regulations laid down for them and observe them, and those who seem to be unable to grasp what is intended for their good and for those with whom they associate. The condition here is somewhat like a school that teaches certain subjects either by theoretical instruction only with the student making the practical applications himself, or by the school giving theoretical instruction backed by practical demonstrations in which the student takes part. In this educational campaign to rid the world of tuberculosis, there are a certain number of the afflicted ones who do not seem to be able by any method of instruction which they may receive on the outside to grasp the ideas necessary to carry out a systematic plan of personal conduct which will prevent them from being dangerous carriers of the disease. They have to have some practical application and they get this practical application through a certain period of treatment in the hospital. In the hospital these prophylactic measures are constantly brought to their attention and whenever they violate one of the regulations, their attention is called to it. After a sufficient period of time they become almost like intelligent automa-

tions and will, after leaving the institution for a sufficient length of time, automatically observe the rules laid down for them, especially if they know that infractions of these rules will again send them to the hospital.

In considering the hospitalization of tuberculosis patients as a health measure, the spread of the disease by patients suffering from tuberculosis naturally falls into two large groups, those who observe the laws and those who do not. Hospitalization applies only to those who do not observe the laws. Further those who do not observe the laws fortunately are the willful but negligent type and these patients may again be sub-divided into two groups: those found among the poor and ignorant, or what are frequently called the "lodging house" type of cases, and the more intelligent willful type that bases his right to do as he pleases upon a wrong interpretation of his rights as a citizen.

A common excuse brought forward by tuberculosis patients when forcibly hospitalized is that they are deprived of their rights as citizens and punished when they have a disease, when, as a matter of fact, they misinterpreted their rights, mistaking license for liberty and wrongly ascribing their involuntary submission to law as being due to their physical condition and not due to their mental attitude towards the regulations which the majority of the people wish to have observed. This willful intelligent type, and the thick square-headed type, who have ideas infrequently and are usually more set upon what they get to eat and drink than upon matters of public welfare, are the hardest to deal with. There is only one intelligent treatment that I have ever seen effective for them and that is to incarcerate them in a hospital which has all the modern means of treatment—which any good hospital should have—and also to all intent and purposes, is a prison in which these people are to be placed until they have shown by their submission to regulations, and their obedience to them, that they are fit to be discharged again into the community.

For over ten years I have been in

*Reprinted from Bulletin of New York City Department of Health.

charge of the tuberculosis institutions of the department of health of the city of New York. We have maintained wards for the care of the tuberculous at Riverside hospital, North Brother Island, Kingston Avenue Hospital in the Borough of Brooklyn, and the Municipal Sanitarium at Otisville, Orange county, New York. In the strictest sense of the term, each one of these institutions has been a teaching institution, whose primary reason for existence has been the care of the tuberculous, but whose secondary reason for existence has been to teach those who are treated there how to go out and become teachers of others, both by example and talk about how they were treated and what they had to do.

At the Riverside hospital institution, we have had as high as three hundred forcibly removed individuals at one time representing for the most part the lowest type of outcast life in New York and they have had it drilled into them what they must do until like soldiers they have become automatons, a large number of whom later intelligently grasp the good that they are to do; the rest are held by fear of incarceration to observe regulations laid down for them.

At the Sanatorium at Otisville, through which thousands of patients have passed, the principal thing taught to these patients, beyond a proper regulation of personal hygiene and diet, is that they are to go out of the hospital and conduct themselves in the community in such a way as to see that none with whom they associate have any possible chance to contract the disease.

It is upon the statements that I have made in this paper that I assert that the discharged patient becomes the greatest prophylactic agent for the prevention of tuberculosis that any community can have.

"Forcible Removals" Code

In order that the reader may understand conditions under which in New York tuberculosis patients are forcibly removed, attention is called to the provision of the charter (Section 1170), of the city of New York, which provides that "Said board (of health) may remove or cause to be removed to a proper place designated by it, any person sick with a (n) . . . infectious disease and designate, provide and pay for the use of places for such persons . . . For the purpose of this section a (n) . . . infectious disease shall be one declared to be such by the board of health."

As a great many of these patients are practically homeless, this provision of Section 1170 would also apply.

"The board of health may send to such place as it may direct all . . . persons in the city not residents thereof who shall be sick of any infectious . . . disease."

Section 97 of the Sanitary Code also provides:

"Whenever an inspector of the department of health shall report in writing that any person affected with any infectious disease, under such circumstances that the continuance of such person in the place where he or she may be is dangerous to the lives or health of other persons residing in the neighborhood, the sanitary superintendent, an assistant sanitary superintendent, or the director of the bureau of infectious diseases, of the said department, upon the report of a medical inspector of the said department, may cause the removal of such persons to a hospital designated by the board of health."

On May 13, 1916, the board of health enacted the following resolution:

"That the department of health adopt a policy of compulsory detention of all vagrant consumptives (popularly known as 'the lodging house type') whose sputum is positive and who are a menace to the community."

The subsequent resolution of the board of health provided:

That the medical inspector who made the inspection should certify to his actual knowledge of the violation of the health regulations upon which the patient was to be forcibly removed.

That a patient who had been detained in the hospital for a period of three months could make an application for discharge and

That, if, after examination by the medical authorities, they endorsed his discharge on the following letter; and, that if the director of the bureau of preventable diseases, after an investigation of the home environment in which he proposed to live after discharge, found them to be satisfactory, the patient would be discharged from the institution; the form utilized being the following:

Dear Sir:—

Upon the request of the Resident Physician
I examined today
The patient has been in the institution since Weight on the day of admission was and is now

Careful physical examination today revealed a relatively quiescent state,

so that in my opinion the patient might safely leave to be taken care of by friends, providing of course, that his future home environments and the place where he will have to live are sanitary. Although there is now some activity and the sputum is positive, the patient is instructed that he has to use the necessary precautions to avoid the possibility of infecting others.

During his stay in the hospital he has complied with the rules of the institution and from the report made to me by and his assistants, I am inclined to believe that the patient will continue his conscientious conduct after his discharge from the institution.

The above named patient having been an inmate of the Riverside hospital for a period of and having received instructions in the proper care of his sputum and the rules of hygiene necessary to the protection of those associated with him, I respectfully recommend that he be discharged under the parole of the Hospital Admission Board.

Yours very truly,
..... M.D.
Attending Physician.

Anti-Epidemic Measures in Far Eastern Ports

The League Health Organization has sent one of its members, Dr. Norman White, to conduct a health inquiry in the chief ports of the Far East, such as Colombo, Singapore, Batavia, Bangkok, Saigon, Hong Kong, Kanton, Shanghai, Kiurun, Kobe, Yokohama, Vladivostok, Dairen. The precise object of the inquiry is to ascertain the incidence of the more important epidemic diseases, the methods employed for the notification of cases and deaths, for the control of the diseases, for the prevention of the spread of infection by ships, as well as the possibility of securing information and of making it speedily and readily accessible.

The Council of the League, in accepting the Health Committee's recommendation on this matter, made at the instance of Dr. Miyajima, its Japanese member, pointed out that the propagation of epidemics in the Far East was of particular concern to the Asiatic Members of the League, and that the sanitary condition of this part of the world was moreover a matter that greatly interested all other countries. The Governments of all the States concerned have promised to give every assistance to this inquiry whose results may lead to the adoption of additional preventive measures and ultimately to closer co-ordination of the efforts of the various health administrations.

Dr. Norman White's Mission is expected to last about six months.

State Council to Coordinate Health Work

State Health Council Contrasted With State Public Health Associations

BY WALTER CLARKE, ADMINISTRATIVE SECRETARY, NATIONAL HEALTH COUNCIL, NEW YORK CITY.

THE coordination of state-wide health work is a matter of concern to all health workers. In its general outlines, at least, the growth of health work in each state should parallel that of the nation, in order that the national and the state-wide agencies may be closely integrated, developing complete reciprocity. The Secretariat of the Council has been studying the tendencies in the several states, and preliminary reports giving a bird's eye view of the situation have been made for the District of Columbia and the ten states of Maine, Massachusetts, New York, Ohio, Illinois, Missouri, Kansas, New Hampshire, Vermont, and Oklahoma. At its recent meeting in Cleveland the National Health Council determined its policy regarding the coordination of state health agencies and resolved to give definite encouragement to the establishment and development of state health councils modeled after the National Health Council.

In the United States two outstanding types of situations among state voluntary health organizations have developed, those in which there is only one effective voluntary state-wide health agency, and those in which there are several. Various experiments in the direction of coordination are being tried in these different situations.

Where there is but one strong voluntary health agency a Council form of organization for coordinating activities may appear impracticable. The State Health Council, as generally understood, implies several co-equal, independent organizations joined for conferences and coordination. In those states which have but one operating private health agency (it is usually a tuberculosis society), the organization of a council would necessitate, first of all, the establishment of additional health organizations representing the fields of work not dealt with by the existing private agency. In most states this would mean the creation of social hygiene, mental hygiene, and cancer organizations which might afterwards be brought together with the Tuberculosis Society, the Red Cross, the state health department and the State Medical Society in a council.

Many people object under such conditions to creating new state-wide health agencies, believing that a single general public health organization can serve all the vital purposes. Thus in Maine a state-wide public health association has been organized upon the excellent foundation provided by the state tuberculosis society. The state tuberculosis societies frequently carry on a wide variety of health activities in addition to strictly tuberculosis work, as for example, the care and feeding of children of all ages, many features of personal hygiene of children and of adults, the encouragement of wholesome recreation and better housing. Campaigns against cancer and venereal diseases, and the promotion of mental hygiene have not been generally considered to lie within the tuberculosis program. In the real state public health association these last mentioned activities have in theory at least been added to the broad tuberculosis program and new activities making a general public health program. The state public health association contemplates the reorganization of the county tuberculosis societies in order that they can carry on, so far as may be practicable, the whole well rounded public health program.

The evident difficulties of the plan, which appears on paper so well conceived, have not yet been overcome in any case, unless one except New York where the tuberculosis and public health sections of the State Charities Aid Association are a veritable state public health association. The first and most apparent difficulty of the state public health association is financial. Seal Sale funds cannot, according to the present contracts between the National Tuberculosis Association and the branch societies in the states, be used for campaigns against cancer, venereal diseases, and for the promotion of mental hygiene. Hence funds must be obtained from other sources—not an easy task. In fact, except in the case of New York it has not yet been successfully done by a state public health association, and here only partially.

The state public health association is conceived as a single agency which

unites all the voluntary health work of the state in one organization. But the local interests of certain very important national organizations can not be merged with any state agency. For example, the Red Cross chapters of a state cannot fuse themselves with the state public health association. Their charters and their source of authority prevent the surrender of their identity and their union, either as a group or as separate units, with a state health agency. Close and helpful relations may be maintained with other state health organizations, but not actual union. This seems to represent a positive limitation to the public health association plan, one that has not yet been escaped, it being impossible for the state public health association to swallow up the Red Cross chapters and constitute, as its name would imply, the sole voluntary state-wide public health agency in a state.

A possible solution would be in a combination of the council plan and the public health association plan by which the state board of health, State Medical Society, Red Cross chapters, and the state public health association would form a state health council. Other agencies, which exist or may be organized in a state, may be included in this group, such for example, as the professional nursing societies and health officers' league. The relation of the state public health association to the State Medical Society and the State Board of Health resembles the relation to the Red Cross, in that these constitute other non-absorbable agencies. There must be an exterior alliance with them because the public health association cannot supervise their activities. The board of health and the Medical Society may be represented in the board of directors of a public health association but that must be for the purpose of directing the work of that association, and not for the purpose of uniting an official agency and the Medical Society under the banner of the public health association. This being the fact there would seem to be an advantage in organizing these limited state health councils even in those states which have already created public health associations, whether they deal with tu-

berculosis alone, or tuberculosis and other health interests.

The term "public health association" as used here is intended to mean veritable public health societies with wide programs including all major phases of health work. There are several public health associations which are simply tuberculosis societies that have changed their names, and, as the French say, "the more they change, the more they remain the same." Such public health societies have of course encountered no difficulties in arranging their lines of national affiliation, as they have remained connected solely with the parent body, the National Tuberculosis Association. But the true public health association which includes in its program cancer, social hygiene, and mental hygiene work as well as tuberculosis activities confronts some difficulties in arranging for natural lines of affiliation with national bodies. The only feasible arrangement seems to be the affiliation of the public health association with each of the specialized national organizations, at least until a closer amalgamation is accomplished through the National Health Council on a national scale. The picture of such a public health association would be a complicated one.

If the state public health association be a member of a state health council, the council may very well constitute a section of a more general group of social agencies. In any case the public health association can, with advantage, affiliate itself with the state council of social agencies, if one exists, in consideration of the numerous mutual interests of health organizations, social relief agencies, and eleemosynary and penal institutions.

As mentioned above the ideal public health association contemplates county or city public health chapters built with the local tuberculosis organization as a basis. The local unit may be divided into committees or sections to deal with each pertinent phase of local public health work. In smaller units it may not be possible to carry on all the suggested phases of public health work at one time, and in that case the emphasis may be changed from time to time to cover the several fields. The state public health association would supply the local organization with materials, expert direction and occasionally may lend personnel. If the society can employ an executive officer the operations would surely be greatly facilitated.

The most vital relation of the state public health association is doubtless with the state board of health. Where

a state health council, including the state Health Officer and the state public health association, is not practicable the state health officer ought to be an advisory member of the board of directors of the State Public Health Association itself. He could, of course, be a voting member but it would usually seem preferable not to make him responsible in that degree for a voluntary health agency which may conceivably be placed sometime in the position of supporting or even criticizing the state health officer. Advisory membership may prevent embarrassment on both sides.

Oklahoma Is Cited

In many states, something short of the real public health association described above may be advantageous—a centralizing of health work through the state tuberculosis society without, however, attempting to effect complete fusion. The machinery of the tuberculosis society might be used by other societies or committees to build up in a harmonious way their activities. The central headquarters equipment, the advice and assistance of tuberculosis society executives, might be employed for specific enterprises without any form of amalgamation—the stronger, better developed, more highly organized agency aiding the newer and weaker groups. This type of friendly cooperation is in fact quite common. Thus the Oklahoma Public Health Association, really a tuberculosis society, gave material aid to the State Cancer Committee in connection with the Cancer Week campaign, by distributing pamphlets and posters to every local tuberculosis society in the state and by urging cooperation on the part of the local societies. A state tuberculosis association being the strongest and best developed voluntary agency, may thus render invaluable aid in coordinating and promoting health work without assuming responsibility or undertaking extraordinary expenses. There would seem to be considerable advantage in such cooperation. Presumably any society that, through this assistance, grows to independent strength should be drawn into a formal state health council on a basis equal to the state tuberculosis association, or might conceivably become an operating division of the stronger and older society.

Apparently in states which have several flourishing voluntary health organizations the public health association plan is not immediately feasible, because, among other reasons, no one organization is willing to submerge completely its identity in a

somewhat hazardous experiment. What may be possible after a period of association in a state health council remains to be ascertained through experience. Possibly the state health council, as we have it in Massachusetts, may in due time lead to the public health association. The experiences of several independent health agencies operating in a state lead almost certainly, sooner or later, to some kind of formal or informal coordination. Sometimes this coordination is achieved through a larger general council of social agencies, sometimes through a state health council, and sometimes through both, with the possible ultimate objective of a single health association.

The object of a state health council, as of the National Health Council, is to promote mutual understanding and helpfulness, which involves necessarily coordination and cooperation. The state health council is formed by the association of independent state-wide organizations engaged exclusively or primarily in health work such as, for example, state societies operating in the following fields of public health work; tuberculosis, social hygiene, cancer, mental hygiene, public health nursing and child welfare. In addition to these specialized societies are included also the Red Cross, the state department of health, and the State Medical Society. Each society maintains full autonomy and liberty of action but each joins through the Council in projects of mutual interests. Each member agency of the state health council may be represented by a delegate and an alternate, usually the president and executive officer respectively.

How far a state health council can go in carrying out its projects of mutual understanding and helpfulness depends on many things, but perhaps most of all upon the available financial resources and the location of the headquarters of the several agencies. The willingness of the leaders of the several agencies to scrap, what may in some cases be impressive machinery is also a factor. It is clear in theory that efficiency can be increased and expenses reduced if all the state voluntary agencies come together in joint offices and joint office services such as purchasing, shipping and telephone. But this requires first of all a considerable belief in the virtue of team work. It also requires that at least several of the members shall find it advantageous to have their headquarters in the same city. Furthermore an initial fund is necessary in order to set

up such an arrangement, although to be sound the joint arrangement must in the long run be a source of economy.

The advantages of joint offices and services should not be limited, however, to the saving of money. It is easier for health workers to help each other and understand the problems of each other if they are closely associated, meet frequently and work together on common projects. The fear that there may be interference and meddling is doubtless a futile fear. Furthermore there is a distinct advantage to the public in having a "health headquarters," a place where all the voluntary agencies can be found together, just as there is an advantage in having a banking district, a retail district, or a theater district in a city. The fact that an organization may not stand out in conspicuous isolation under the joint office plan is more than compensated by the fact that each is more accessible to the general public and each organization gains by the publicity of the others and by the visible evidence of team work which joint offices and services give to the public.

Joint Conferences and Offices

Joint offices and services are a concrete example of an understanding and helpful spirit which, in the last analysis, constitute the vital *raison d'être* of the state health council. But team work for the promotion of public health involves more than joint offices and services and can in fact exist without either. Consideration of each other in preparing programs of work, mutual confidence regarding plans, joint action for mutually helpful legislation, coordination of field work and of financial campaigns, the collective promotion of local branch organizations, and cooperative publication enterprises do not necessarily require, but are certainly made easier, by joint offices and services. A state health council can accomplish important results even when there is no employed officer. The Massachusetts Health Council has, by its periodic conferences and by the development of good will, done an important work. But the members of the Massachusetts Council are at the same time cognizant of the limitations of a council which has no one especially assigned to carry on its work, and to place in operation policies advantageous to council members.

In order to be fully successful the ideal council should have at least a part time executive officer with a stenographer, joint offices and services and frequent interstaff conferences on

all subjects of mutual interest to the members of the council.

What should be the relation of a state health council to the state board of health, the state medical and nursing societies, the local Red Cross chapters and the several national organizations whose interests are represented in the council? And finally what should be the relation of the state health council to the National Health Council?

The interest of state health agencies in the state board of health is a vital one, and the interest of the state health officer in the voluntary health agencies of the state should also be vital. Perhaps the most important function of a private health agency is to aid public agencies in their work, to support their policies when these are right and to extend the services of public agencies as rapidly as sound procedure permits. The real relation of the state health officer to the state health council will depend upon the strength and leadership of the former; but officially he should be at least an advisory, if not a regular voting delegate.

As the prevention of disease and the promotion of health must bear a close relation to the treatment of disease so the state health council should include the state medical society in its membership. It is of the utmost importance that the medical profession should have a voice in health activities because of the part physicians play in health work and because, strategically, their professional support is necessary to the success of health activities.

The state medical society should, then, be an advisory or voting member of the state health council. The nursing profession of the state should in like manner be represented in the council, especially if there be a public health nursing organization.

It may appear somewhat difficult to arrange for Red Cross interests to be represented properly in a state health council in view of the fact that there is no intermediate organization, standing between the local chapters and the Red Cross division headquarters, which embraces the interest of several states. There is no state-wide Red Cross grouping of chapters. But in practice representation in a state health council is simple. Either the divisional manager of the Red Cross may serve as a delegate of the State Red Cross interests, as in Massachusetts, or the state supervisor of nursing, the principle health interest of the Red Cross, may serve. The Red Cross remains one of

the most important voluntary health agencies in most states and in several states it is quite the most important. Whatever adjustments or expedients are necessary, should be made in order that the Red Cross may be regularly represented in the ideal state health council.

The state health council itself has no connection with specialized national organizations such as the National Tuberculosis Association, the American Social Hygiene Association, the National Organization for Public Health Nursing, but the societies which are members of the ideal state health council should certainly be affiliated with their corresponding national agencies. This affiliation gives the state health council an indirect connection with the National Health Council of which the national specialized organizations are members. To the present time no way has been provided by which state health councils can be members of the National Health Council, but an arrangement to that end is under consideration not only for the state health councils but for the state public health associations also, in order that associate membership representation may be given to health agencies on a general state-wide basis as well as on the present basis of national organizations.

Policy of N. H. C.

It is quite as clearly advantageous to the health agencies of a nation that state-wide health activities should be coordinated as it is that the national specialized agencies themselves should be coordinated in their programs and activities. Hence the National Health Council is formulating a policy of promoting the coordination of voluntary state-wide health agencies. But as there are many difficult unsolved problems in the way of the state public health association, some of which have been pointed out in previous pages, the National Health Council has taken the position of the sympathetic observer so far as the state public health association plan is concerned, while it desires positively to promote the establishment of state health councils modeled after the National Health Council itself. It is recognized in the meantime that a state health council may eventually develop into a state public health association; but it is believed that that process will and ought to be a gradual one extending perhaps over a number of years.

Difficulties in the way of the state public health association are not altogether due to the state conditions. It will be difficult for strong state

public associations having sections devoted to tuberculosis, cancer, social hygiene, and other specialized fields to develop in advance of a parallel development on a national scale and among national organizations. The natural present tendency is for each national organization to create branch societies in each state, these branches being directly affiliated with the parent national organization and in many instances contributing to its support. But the state public health association, gathering specialized public health work under one head and management, interposes itself between the national specialized organizations and their interested state-wide groups, whether these groups be organized or not.

Were all national health organizations merged in one great national public health association the relation of such a comprehensive organization to the state public health association would be simple. As it is, there is nobody corresponding on a national scale to the state-wide public health association, and in the state public health association the national specialized public health organizations tend to lose contact with their local groups.

There is the further difficulty of securing funds for a state public health association. There is now no source of financial support which gives assurance of an adequate income of some \$20,000 to \$200,000 a year for a general state-wide health program. If Christmas Seal funds could be used for the support of general public health work, including cancer, venereal diseases, and mental hygiene, it might produce sufficient revenue, but there is no assurance that this will be possible in the near future. That too may have to await the closer amalgamation of national specialized groups.

Of the remaining difficulties which might be considered, it is the opinion of a strong group of experienced health workers that it is only by pressing forward as distinctly specialized groups that popular health movements can succeed. A "public health appeal" might fail where a "tuberculosis appeal" or a "social hygiene appeal" or a "mental hygiene appeal" now succeeds in gaining community support. The advertising and publicity values of a "public health program" are considered by many to be less than that of specialized phases of public health. In view, therefore, of the danger of substantial losses, many state and national leaders of special interest groups are slow to consent to

the union of their independent organizations in a general public health program. It has seemed advisable, therefore, that the National Health Council should not at present promote the organization of state public health associations in view of the uncertain nature of such experiments, but the Council will study with the most sympathetic interest the experiments which are now under way or which may be begun during the year.

Warning Labels Needed on Lye Preparations

Laws should be enacted compelling manufacturers of caustic alkaline preparations to place warning labels on their products, states the A. M. A. committee on lye legislation. Questionnaires sent to 1,448 esophagoscopists and surgeons brought back reports of 490 cases of accidents. More accidental deaths are caused by lye than by prussic acid, yet the infrequency of the former does not release the druggist from putting a "scare" label on prussic acid bottles.

The report of the committee (J. A. M. A., Nov. 25, 1922) states that the results of their investiga-

tions were "appalling, in showing how frequently this awful calamity befalls little children." The packers of cleansers mistakenly claim that their diluted preparations are harmless and refuse to put any warning on the packages. An attempt to correct this condition by moral suasion is useless, partly because the packers believe an unfair advantage would be given diluted preparations.

The poison statutes in most states consider only deaths, and do not take into account the life of misery that can follow the narrowing of the throat, nor of the indirect deaths by nephritic, bronchial, and other complications.

In the belief that if the public can be informed of the danger, a demand for legislation will follow, the committee is planning a campaign to secure warning labels on the caustic preparations used so commonly in the household.

The Knights of Columbus, after a two year investigation, has decided against any program for the hospitalization and treatment of the tuberculous and will undertake instead educational work on prevention.

Child Health Association

THE AIM of the Child Health Association, established in October by the merging of the Child Health Organization of America and the American Child Hygiene Association, is to create a decentralized child health union in which every agency and individual would be a member of the national body yet lose no directory power in local activities.

The association aims to stimulate, when necessary, and to strengthen in every way possible the work now being done in the local communities.

First of all, it will act as a clearing house of information on all national child health activities, a switchboard through which a newly-born organization can listen in on the experiences of its elders, through which a struggling organization can learn how best to save its time, effort, and money by avoiding recognized pitfalls.

Secondly, it will serve as a source of up-to-date, scientific information on child health, prepared by the best qualified doctors and other professional workers in this and other countries.

Thirdly, it will supply a field service composed of experts who, on request of a community, will help organize a new local health body or help

solve the problems of one already existing.

Finally, it will aim to establish standards for child health work on a sound medical basis, to eliminate waste in the practical application of these standards, to coordinate the work already being done in such a way as to avoid all duplication of effort. It is quite evident from authenticated statistics that work along these lines is not sufficient to meet the present need. America now ranks last of all nations advanced enough to have statistics on maternal mortality. It ranks sixth in infant mortality. Of its twenty-two million school children, 30 per cent are so far under standard weight as to suggest a condition of malnutrition, and three million are in urgent need of medical attention. The American people, therefore, cannot afford the loss of energy due to duplication and the consequent confusion which at present results from uncorrelated child health work. That is the fundamental reason for the amalgamation of the American Child Hygiene Association and the Child Health Organization and for the proffer of administrative help from the American Relief Administration.

Health Education Saves Thousands Yearly*

By ARTHUR J. STRAWSON, SUPERVISOR OF FIELD SERVICE, NATIONAL TUBERCULOSIS ASSOCIATION, NEW YORK CITY.

HEALTH education is one of the outstanding needs of our day, and it is assumed that the voluntary health agency, working in full cooperation with the public health agency, is approved by all who have given the matter thought. Engineers studying waste in industry discovered a great need for health education. The Hoover Committee on Elimination of Waste in Industry of the Federated Engineering societies reported that among the forty-two million persons engaged in gainful employment there is an average loss of over eight days of time or 350 million days annually. In addition to this loss of time, 500,000 of these forty-two million workers die annually, at least 250,000 from causes postponable by medical supervision, periodic physical examination, health education, and community hygiene. These lives are each worth to industry some \$5,000 annually, while medical and other special care, including special food made necessary by the final illness, cost some \$3.00 per day. When these items are added, it is found that the loss to industry from preventable illness and death is \$1,800,000,000 per year. Engineering study and estimate further find that industry could save annually \$1,000,000,000 by reasonable health education and supervision. These facts alone show the need for health education.

In the first place, executives of health associations need education for their work. Some of the most effective training courses, generally under university supervision, are those provided by the growing number of schools for social work and the short courses and special institutes being given for secretaries. Secretaries should not overlook the educational value of local, state, and national conferences, while they will be wise to study carefully the development of health work in leading health journals.

The health movement is to be congratulated upon the increasing number of full time public health officers. It is evident that they must be better trained than the part time men whom they supersede. This is no disparagement of health officers who have done their best under difficult conditions when they were obliged to earn their

living by private practice and yet were held to the management of public health matters for which they were paid the merest stipend. It is fortunate that courses leading to the degree of Doctor of Public Health are now being given by such universities as Michigan, Harvard, Johns Hopkins, Pennsylvania, Tulane, Wisconsin, and Yale, while other degrees and certificates are issued by other universities. The next step after writing into the law the provision for the full time health officer is the addition of a demand that he be fitted for his work. The state health officer in New Mexico has arranged a correspondence course for the health officers in his state while two and three day working institutes are often arranged by other state health officers for the training of their part and whole time local health officers.

Physicians will greatly appreciate the opportunity which many of the present undergraduate men are having to acquire more training in tuberculosis work and in public health matters generally than was their lot in former years. In 1916 the National Tuberculosis Association endorsed the idea of having tuberculosis wards in general hospitals while at the Atlanta, Ga., meeting of the National Nursing Associations and at the Boston meeting of the American Medical Association the project of having pavilions for the tuberculous in connection with general hospitals was approved. This means greater efficiency in the training of both physicians and nurses in work for the tuberculous. So much is the National Association impressed by this need that it is giving special attention to work with medical colleges, aiding them to develop their undergraduate tuberculosis training.

Another feature which will help physicians who graduated years ago is the development of short courses in tuberculosis diagnosis and treatment, such as that provided in the Trudeau Sanatorium at Saranac Lake, New York. The National Association has cooperated in the establishment of such a course at Colorado Springs, Colo. Physicians when taking this course may combine with their studies a brief vacation amid pleasant surroundings. Somewhat similar courses are now being arranged by several of the state tuberculosis associations in

cooperation with their own state tuberculosis sanatoria.

For undergraduate nurses, the National Tuberculosis Association has prepared "An Outline of Lectures on Tuberculosis for Nurses, Occupational Aides and Social Workers with Bibliography." Several tuberculosis associations in cities have provided a course of lectures for all undergraduate nurses in which they cover the various phases of public health. One of the most satisfactory things in this connection is the rapid development of courses in public health nursing. Such courses are given as part of the work leading to a Bachelor of Science degree at the Universities of California, Iowa, Michigan, Minnesota, Missouri, Columbia University, Western Reserve University, Universities of Oregon, Texas and Washington; while other approved courses of public health nursing are given now in cooperation with the University of Louisville, Ky., Simmons College, Boston, University of Pennsylvania, and William and Mary College.

For adults the newspaper is perhaps the greatest educator in health matters. The motion picture, stereopticon slide, radiogram, traveling health exhibit, and traveling clinic are of prime importance. The literature of public health is vast in cost, variety, and results. Thousands of public and private agencies are keeping the printing press busy. The Texas Public Health Association is using a health exhibit car and had its health education in connection with the Christmas seal sale broadcasted from every important radio station in Texas.

The seal sale, itself, has become a powerful educational factor, as is demonstrated by the fact that bond issues for health objects are voted much more readily where the Christmas seal is doing its work properly. For illustration, a \$50,000 bond issue for a tuberculosis sanatorium was recently passed by a five to one vote at Beaumont and Port Arthur, Texas, where a good local tuberculosis association has been doing health education work. Another educational method for use with adults is the portable cottage which is placed by the tuberculosis or public health association upon a lot where an adult lives who has tuberculosis and who would otherwise doubtless infect his chil-

*Read before the Medical Division of the Texas Conference of Social Welfare, Dallas, Texas, October 17, 1922.

dren. Such cottages are moved from house to house by wagon, as need arises.

More important than all of these subjects combined is the training of children in proper health habits. The National Tuberculosis Association, and its affiliated state and local as-

sociations, have enrolled 8,000,000 boys and girls who for many weeks at a stretch check themselves daily on their practice of the fundamental health habits. It teaches by doing. It is made play. It aids parents to get children to gladly obey them on health matters. By introducing honors it

develops competition in this new chivalry for health. The children, by faithful performance of duties, win one by one the titles of Squire, Knight, Knight Banneret, and Knight Banneret Constant. Attractive buttons are given them in recognition of their completed labors.

County Health Associations*

By T. J. EDMONDS, EXECUTIVE SECRETARY, IOWA TUBERCULOSIS ASSOCIATION, DES MOINES, IOWA.

A NEWS item has appeared in a number of papers in Iowa to the effect that the authorities of Jackson county have voted to establish what is known as the County Public Health Unit. This means a full-time physician with nursing and laboratory service. The article states that this action is the result of the efforts of the Jackson County Public Health Association whose President is Dr. D. N. Loose. Dr. Loose is one of the Councillors of the State Medical Society and has been president of the Jackson County Medical Society. Jackson county is a typical rural Iowa county.

This item is significant for two reasons: First, it shows the value of the county public health association, and second, it is an instance of excellent cooperation between public health workers and the medical profession and gives evidence of the effectiveness of such cooperation.

Stimulated by the Iowa Tuberculosis Association the county public health association movement has made considerable progress in Iowa in the last three years. One-fourth of the counties in the state have organizations going by the above name, and in additional two-fourths of the state there are organizations which are county-wide in scope and representative in personnel of various elements of the community and which have public health committees functioning in the same manner as county public health associations. All of these organizations are affiliated with the Iowa Tuberculosis Association and elect each a representative member on the state board of directors of the association.

Through the state headquarters these organizations have contact with other state agencies; such as, the Iowa State Medical Society, State Conference of Social Work, State Teachers Association, American

Legion, Federation of Women's Clubs, Iowa Chamber of Commerce, State Farm Bureau Federation, State Board of Health, Extension Divisions of the state colleges and the Board of Control of State Institutions.

This contact relates to legislation, publicity, health education, nursing service, questions concerning hospitalization, clinics, and other questions affecting public health.

The program of local activities is an exceedingly varied one extending from fixed activities such as public health nursing, dispensaries and clinics, preventoria, open air schools, hospital aid, down to less costly and more temporary items such as school lunches, the furnishing of measuring scales, first aid kits, diagnostic clinics, health weeks, neighborhood meetings, poster contests and other educational stimuli, Modern Health Crusade supplies, exhibits, and various informational and promotive activities.

The County Public Health Association is not a new or competing social agency in any community. It is frequently the outgrowth of the activities of some long established county organization such as a Federation of Parent-Teacher Associations. Sometimes it assumes the form of a council made up of representatives of existing agencies which have an interest in health, such as the Red Cross chapter, the County Farm Bureau, commercial bodies and clubs. Another form is that of an existing social agency such as the Social Service League or Visiting Nurse Association which has met the conditions of affiliation and has constituted itself a representative of the state association functioning in the same manner as a county public health association. It is a cardinal principle of this movement to correlate rather than duplicate efforts, and to avoid new machinery.

In discussing the relationship of these groups to the state association it should be borne in mind that the latter is practically a state public

health association in its scope of work. There is no other voluntary public health state-wide agency.

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A previous issue of THE NATION'S HEALTH contained a discussion of the field activities committee of the Iowa State Medical Society. One of the purposes of this committee is to bring the medical profession into closer alliance with the public health movement and with organizations interested in public health. Another purpose was to motivate county medical societies toward cooperation with local public health movements. The County Public Health Association plan as described above and the active participation of local physicians therein was indorsed in a recent meeting of the field activities committee and the councillors, and letters will be sent by the director of the committee, F. E. Sampson, M.D., to all county medical societies.

Georgia's child labor law which falls below federal standards of the act declared unconstitutional by the Supreme Court will probably be strengthened by the legislature which meets in June, states H. M. Stanley, labor commissioner. A survey of twenty-four Georgia factories made by the federal children's bureau revealed 315 instances of employment of boys and girls under the age of 16, working from ten to twelve hours a day, some on night shift. Georgia's state law sets 14 as the minimum age for work in factories but grants working certificates to orphans of 12 years dependent on their own labor and to 12 year old children of widows. It took ten years to get the present law on Georgia's statute books, according to the statement of Commissioner Stanley.

Dr. Haven Emerson, professor of public health administration, Columbia University, and advisory editor of THE NATION'S HEALTH, has been appointed health editor of *The Survey*.

*Read before a joint meeting of the Councillors and Field Activities Committee of the Iowa State Medical Society.

Economics of a Full Time Health Program

County Health Departments Needed to Make Rural Equal to City Health

By WALTER M. DICKIE, M.D., SECRETARY, CALIFORNIA STATE BOARD OF HEALTH, SACRAMENTO, CALIF.

THE need for full-time county health departments in California and other Pacific Coast states is very great. At the same time, these western states probably offer greater opportunities for the achievement of results, through the organization and maintenance of full-time county health departments, than do states comprising other geographical units in other parts of the country.

Six full-time county health departments are either organized or in process of organization in California at the present time. The conditions in the average California county, operating under a part-time health program, are not widely different from similar conditions in other counties throughout the United States. Most of these counties have within their borders two or three small incorporated cities, one of which may or may not have a well organized health department, the rural portion of the county depending upon a part-time county health officer for its public health administration. Too often this official is miles away from the locality where his services are needed, and his dependence upon the practice of medicine for his living makes it im-

possible for him to attend properly to the duties of his office.

On the outskirts of every incorporated city maintaining an organized city health department, there is a "No man's Land." It is just outside of the city limits of such a municipality that the most flagrant health conditions are permitted to exist. The city health officer has no jurisdiction over this zone, and the county health officer is not inclined to interfere with the affairs of a district which, because of its more congested population, offers problems that are those of a city rather than of a rural territory. It is in this "No man's Land" that the health of children is generally without supervision. It is here that the one and two-cow dairies are conducted without regard to health conditions. It is here that all of the nuisances that have to do with faulty sewage disposal are most commonly encountered. It is in this territory that contaminated wells are so frequently found responsible for the prevalence of intestinal infection. It is within this area that peddlers are able, so often, to dispose of stocks of food supplies unfit for human consumption. While all of these and many other flagrant violations of good public health procedure exist openly, the health officer of the adjoining city can merely look on and suffer the direct results of the lack of health supervision in this outland territory over which he has no jurisdiction. The county health officer, while he may be aware of the unfortunate conditions that exist here, is generally unable, even though willing, to take any hand in bettering these conditions because of the common lack of funds and lack of interest upon the part of the county government.

The development of state and county highway systems and the increased use of the automobile have removed the isolation of the small rural community. Residents of such communities, through lack of contact with the outside world, were formerly seldom exposed to various infections, chiefly respiratory, that flourish and thrive wherever large groups of individuals are in close association. As

a result, these people possess relatively little immunity against such infections which now are often more prevalent in the rural districts than in urban centers. This fact alone emphasizes the need for protecting the health of the rural resident who is now exposed to new health risks. This protection is just as necessary as is the protection of the city dweller against the intestinal infections more frequently found in rural districts. Modern transportation, in its destruction of the isolation of the rural community, has brought old health problems into relatively virgin territory and has brought about one of the most important reasons why full-time county health departments should be developed in the West.

Another factor in the spread of communicable diseases in rural districts is the union school. The development of this type of school is also a product of newer transportation methods which have made the old time district school begin to disappear. Automobile busses now carry pupils a distance of twenty or more miles to the union grammar or high schools. New and more extensive contacts result in the more extensive spread of contact diseases. Health supervision

DEATHS FROM TYPHOID PER 100,000 POPULATION

Registration Area of **UNITED STATES**
Compared with
CALIFORNIA OREGON WASHINGTON



Chart I.

DEATHS FROM TYPHOID PER 100,000 POPULATION in **CALIFORNIA—** and **ITS PRINCIPAL CITIES.**

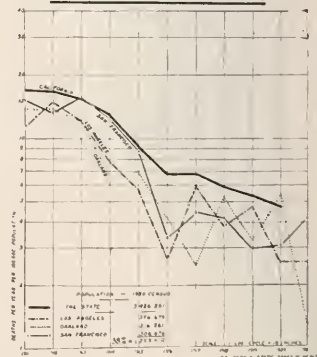


Chart II.

TABLE I - INFANT MORTALITY IN CITIES OF THE UNITED STATES*

1921				Population over 250,000										1919	
1921				1920		1919		1918		1917		1916		1915	
Portland, Ore.	44	Seattle, Wash.	56	Seattle, Wash.	56	Pittsburgh, Pa.	96	Kansas City, Mo.	129	Pittsburgh, Pa.	115	Pittsburgh, Pa.	115	Pittsburgh, Pa.	115
San Francisco	51	Portland, Ore.	51	Minneapolis, Minn.	51	Kansas City, Mo.	94	Pittsburgh, Pa.	110	Buffalo, N.Y.	107	Kansas City, Mo.	107	Kansas City, Mo.	107
Seattle, Wash.	52	San Francisco	52	San Francisco	59	Buffalo, N.Y.	93	Buffalo, N.Y.	104	Kansas City, Mo.	107	Kansas City, Mo.	107	Kansas City, Mo.	107
Population 100,000-250,000															
Oakland, Cal.	52	Houston, Tex.	37	Houston, Tex.	61	Memphis, Tenn.	118	Nashville, Tenn.	205	New Bedford, Mass.	104	New Bedford, Mass.	104	New Bedford, Mass.	104
Spokane, Wash.	55	Spokane, Wash.	71	St. Paul, Minn.	61	St. Paul, Minn.	113	St. Paul, Minn.	114	St. Paul, Minn.	114	St. Paul, Minn.	114	St. Paul, Minn.	114
Spokane, Wash.	55	Oakland, Cal.	72	San Francisco	59	San Francisco	104	San Francisco	104	San Francisco	104	San Francisco	104	San Francisco	104
Population 50,000-100,000															
Long Beach, Cal.	39	Tacoma, Wash.	37	Seattle, Wash.	44	Charleston, S.C.	154	Savannah, Ga.	165	St. Paul, Minn.	114	St. Paul, Minn.	114	St. Paul, Minn.	114
Long Beach, Cal.	39	Spokane, Wash.	71	St. Paul, Minn.	61	St. Paul, Minn.	113	St. Paul, Minn.	114	St. Paul, Minn.	114	St. Paul, Minn.	114	St. Paul, Minn.	114
Long Beach, Cal.	39	San Diego, Cal.	52	San Francisco	59	San Francisco	104	San Francisco	104	San Francisco	104	San Francisco	104	San Francisco	104
Population 25,000-50,000															
Pasadena, Cal.	31	Pasadena, Cal.	31	San Francisco	59	Petersburg, Va.	154	Wichita, Kan.	172	Wichita, Kan.	172	Wichita, Kan.	172	Wichita, Kan.	172
Brookline, Mass.	41	Brookline, Mass.	41	Brookline, Mass.	41	Brookline, Mass.	41	Brookline, Mass.	41	Brookline, Mass.	41	Brookline, Mass.	41	Brookline, Mass.	41
Brookline, Mass.	41	Brookline, Mass.	41	Brookline, Mass.	41	Brookline, Mass.	41	Brookline, Mass.	41	Brookline, Mass.	41	Brookline, Mass.	41	Brookline, Mass.	41
Population 10,000-25,000															
Portland, Ore.	24	Astoria, Ore.	23	Portland, Ore.	24	Portland, Ore.	24	Portland, Ore.	24	Portland, Ore.	24	Portland, Ore.	24	Portland, Ore.	24
Santa Cruz, Cal.	33	Richmond, Cal.	37	Richmond, Cal.	37	Richmond, Cal.	37	Richmond, Cal.	37	Richmond, Cal.	37	Richmond, Cal.	37	Richmond, Cal.	37
Richmond, Cal.	37	Richmond, Cal.	37	Richmond, Cal.	37	Richmond, Cal.	37	Richmond, Cal.	37	Richmond, Cal.	37	Richmond, Cal.	37	Richmond, Cal.	37

* Data compiled from reports of American Child Hygiene Association.

of these rural school children is made a matter of the utmost necessity.

California, Washington, and Oregon, because of their scenic marvels rendered so easily accessible by good roads and extensive camping facilities, attract many thousands of tourists each year. The United States Forest Service provides the best of sanitary camping facilities in the forest reserve camps, as do most of the municipalities in California. More than one and one-half million people, according to the Forest Service, visit the national forests of California annually. Fully 80 per cent of these visitors are campers. There are not nearly enough camps to provide for this summer tourist army, and there should be at least 300 more improved camps for the accommodation of vacationists who travel by automobile, not from the Pacific Coast states alone, but from all parts of the United States.

That there are acute public health problems associated with the seasonal movements of these large groups of individuals is obvious. Protection of water supplies, detection of typhoid convalescents and carriers, maintenance of strict sanitation in supervised camps, and the curbing of promiscuous camping are but few of these problems now only partly solved. The field for the full-time county health unit in this work is almost

without limitation. The need for sanitary inspection service in most of the summer resort districts and in the national parks is so great that it is apparent to these million and a half tourists, and the local residents, too, who most needs the protection that such service affords, is beginning to realize the necessity of its establishment.

In California, the large cities of Los Angeles, San Francisco, and Oakland, comprising nearly half the population of the state, determine absolutely the downward trend of the state's typhoid fever death rate. It is these cities with their organized, full-time health departments that constitute the chief factor in reducing the California typhoid mortality rate to the low figure of 4.1 per hundred thousand population in 1921. When it is considered that most community water supplies in California find their sources in surface streams, it is remarkable that the California death rate for this disease is so low. The typhoid death rates for the states of Washington, Oregon, and California are almost every year about twice as high as are similar rates for the large cities within their borders. Occasionally the typhoid fever death rate for one of these large cities approaches the higher state rate but when this occurs it can nearly always be traced to an outbreak of ty-

phoid among the residents of that city who have contracted the disease in one of the out-lying districts. In 1921 the large cities of the Pacific coast obtained typhoid fever death rates varying from 1 to 3 per one hundred thousand population. The last published rate for the United States Registration Area showed a typhoid death rate of 7.8 per hundred thousand population. Similar rates for Oregon, Washington, and California for 1920 were 4.9, 5.6 and 4.8, respectively, per hundred thousand population. A comparison of the records of these cities with the records for their respective states proves that the cities, in bringing about their low rates, are placed absolutely at the mercy of conditions existing in the surrounding rural districts. If the rural territories of Pacific coast states were as well organized from a public health standpoint as are most of their large cities, typhoid fever might be almost entirely eliminated in this part of the country. The remarkable reductions in the death rate for this disease could not have been made possible without the strong public health organizations of the larger cities. If the rural districts were provided with adequate public health machinery, through the establishment of local full-time health units, California, Oregon, and Washington should have annual typhoid fever death rates not higher than 3 per 100,000 population.

Infant Deaths Low in Cities

Washington and Oregon have the lowest infant mortality rates of any states; and the several cities, both large and small, located within these states, have, according to the American Child Hygiene Association, the lowest infant mortality rates of all cities. For three consecutive years, Seattle, San Francisco, and Portland have had the lowest infant mortality rates of all cities in the United States having populations over 250,000. Oakland and Spokane, for the past three years, have had the lowest rates of all cities having populations from 100,000 to 250,000. Berkeley, Long Beach, San Diego, and Tacoma have had, during these same years, the lowest rates for all cities having populations of 50,000 to 100,000. The California cities of Pasadena, Santa Cruz, and Richmond, as well as Astoria, Ore., and Aberdeen, Wash., have made records for obtaining the lowest infant mortality rates among those cities having populations between 25,000 and 50,000, and among cities having populations of 10,000 to 25,000.

TABLE II - INFANT MORTALITY RATES FOR PACIFIC COAST STATES AND CITIES**

	San Francisco, Cal.	Los Angeles, Cal.	Portland, Ore.	Seattle, Wash.	Spokane, Wash.	Washington, D.C.	California	U.S. Registration Area
1916	57	59	64	57	58	59	59	101
1917	63	71	71	62	61	62	62	96
1918	67	77	73	77	61	77	74	101
1919	62	67	62	69	54	66	63	87
1920	67	71	71	50	57	71	62	86
1921	44	66	50	47	47	53	44	66.3

** Data not available.

** Data compiled from Public Health Reports, U.S. Public Health Service.

While it is true that the factor of climate, with relation to the production of pure milk supplies, has something to do with bringing about these remarkably low infant mortality rates, the chief factor in bringing about these remarkable results lies in the organized effort of these municipalities in saving the lives of their infants. If the rural districts of these Pacific coast states were organized as thoroughly as are the cities, the Pacific coast could well challenge New Zealand, or any geographical unit, in the making of low infant mortality rates. The natural advantages of the Pacific coast in this respect are unusual. The stability of the climate; absence of extremes in temperature and humidity; good social conditions; educational advantages; absence of over-crowding; availability of pure milk supplies; comparative absence of the first generation of the foreign-born; and social conscience of the people are factors in the saving of infant lives on the Pacific coast.

The large cities, with their organized health departments, are setting the pace. Machinery for maternal and child care is provided in every coast city of any size while in the rural districts little or none is available. The continuation of these low records, and their further lowering, depends largely upon what these states will accomplish in the organization of full-time county health units.

The minimum unit for a full-time county health department in California consists of a full-time physician as health officer, public health nurse, sanitary inspector, and an office clerk, all of whom shall devote full time to the duties of their office. A minimum of \$10,000 a year is required in the proposed county budgets. In most counties, it is proposed that the health officer shall have complete jurisdiction over all rural and urban territory within the county. With the development of the full-time health

department idea, there is growing a spirit of community responsibility in the safe-guarding of community health.

The state is stimulating the cultivation of a spirit of local independence and is encouraging every local health department to stand upon its own feet. It is advising, assisting, stimulating, and providing expert counsel in the encouragement of all local activities for the promotion of local public health. Modern conditions must be met by modern methods. Increased opportunity for the spread of contact diseases has grown tremendously since modern methods of transportation have done away with the isolation of remote communities. The opportunities for the spread of contact diseases are vastly greater today than they were ten years ago. With a full-time health officer, public health nurse, and sanitary inspector constituting a flying squadron a large amount of preliminary epidemiological work can be accomplished before calling upon state or federal health authorities for assistance. The development of full-time health units attracts a higher grade of public health official. There is no reason why an outbreak of the more common communicable diseases cannot be brought under control through the investigations and supervision of the local department. The state, under the ideal plan, should contribute only expert technical assistance that the

TABLE III - TYPHOID FEVER IN REGISTRATION STATES, 1916 to 1921

		Deaths per 100,000 Population				
		1920	1919	1918	1917	1916
1	Mass. (R.I.)	2.6	Mass. (Vt.)	2.7	Winn.	3.7
2	R.I.	2.8	Wis.	3.1	Wis.	3.8
3	Winn.	3.0	N.J.	3.2	Mass.	4.1
4	N.J.	3.3	Min.	3.3	N.H.	4.5
5	N.Y.	3.6	N.H.	3.4	Conn.	5.4
6	Conn.	4.1	N.Y.	3.6	N.J.	5.2
7	Neb.	4.5	Conn.	4.0	N.Y.	5.7
8	N.J.	4.8	Wash.	4.2	Cal.	6.0
9	Ore.	4.9	Ore.	4.9	Wash.	7.4
10	Wash.	5.6	Cal.	5.4	W.	7.7
11	Pa.	5.7	Me.	5.7	Ill.	8.2
12	Ill.	5.8	Ill.	5.9	Vt.	8.5
13	Utah	6.8	Pa.	7.1	Mich.	9.4
14	Me.	6.9	Mont.	7.2	Ore.	9.5
15	Reg. 1916	7.0	Kans.	7.3	Mont.	10.1
16	Ohio	7.5	Mich.	7.6	Pa.	10.9
17	1920	7.8	Ohio	8.0	1916	11.3
18	Mich.	7.8	1916	8.1	1920	12.6
19	Kans.	8.0	Colo.	8.5	Ohio	13.6
20	Me.	9.0	1920	9.2	Ind.	13.8
21	Colo.	9.2	Utah	9.4	Colo.	15.4
22	Ind.	9.7	Ind.	12.4	Kans.	16.6
23	Mo.	10.0	Id.	11.8	Id.	17.0
24	Vt.	10.5	Mo.	12.5	W.	17.9
25	Del.	11.2	Va.	15.5	Mo.	19.6
26	N.C.	12.5	N.C.	17.5	N.C.	22.8
27	Pia.	14.6	Del.	17.6	Ky.	27.2
28	La.	15.5	Pia.	18.3	Tenn.	20.2
29	Miss.	18.6	Wiss.	20.3	S.C.	25.5
30	Ky.	20.2	La.	22.8	La.	30.9
31	S.C.	22.4	S.C.	26.3		
32			Ky.	26.9		
33			Tenn.	28.0		

• Data compiled from Public Health Reports, U.S. Public Health Service

local community is not able to provide. Direction and control in the more common communicable diseases encounter greater resistance than in epidemic conditions. While control is the concern of properly constituted health authority, really effectual preventive measures none the less hinge principally upon the good habit and consistent cooperation of an interested and sympathetic public. Public health organization in such a case is but the visible evidence of enlightened public opinion.

No organization can possibly be stronger than its weakest link. California, Washington, and Oregon are now engaged in forging strong chains in their public health organizations. With the natural advantages, such as have been enumerated, the possibilities for making life longer and happier on the Pacific coast are very great. Public opinion is supporting the development of the idea with full cooperation, and there is every reason to believe that other states must look to their laurels if they are to compete with these young western states in the promotion of a health program that means longer, happier lives for their people.

TABLE IV - TYPHOID DEATH RATES PER 100,000 POPULATION "PACIFIC COAST" STATES AND CITIES*

	San Francisco Calif.	Los Angeles Calif.	Oakland Calif.	Portland Ore.	Seattle Wash.	Spokane Wash.	Oregon	Washington	California	United States
1911	15.2	11.5	13.9	19.7	10.5	38.3		19.1	17.1	21.0
1912	19.5	15.0	13.9	17.9	8.2	20.1		13.4	16.9	16.5
1913	15.9	12.2	12.2	7.2	5.3	8.6		11.5	15.6	17.9
1914	12.5	7.9	6.7	7.9	6.1	16.3		12.2	13.1	15.5
1915	6.6	5.8	7.0	6.0	2.9	13.4		9.5	9.4	12.4
1916	3.4	2.7	4.2	5.8	3.8	2.9		6.2	6.9	13.3
1917	4.5	6.0	2.5	5.9	6.1	11.5		9.3	6.9	13.5
1918	4.2	7.9	5.3	6.0	4.0	13.4	4.5	7.5	6.0	12.6
1919	3.0	4.4	3.3	5.1	3.2	*	4.9	4.2	5.4	9.2
1920	3.1	2.6	5.5	3.5	1.9	6.7	4.9	5.6	4.6	7.4
1921	4.2	2.6	1.3	3.0	2.2	4.7	*	*	*	*

* Data not available

** Data compiled from Public Health Reports, U.S. Public Health Service.

Digest of Sanitary and Hygienic Advance

Prophylaxis in Bakers' Itch

The etiology of dermatitis in bakers has been investigated by deJong (*Brit.M.J.*, 3237, p. 65, Jan. 13, 1923). He concludes that neither the flour nor the yeast is responsible for the irritation, which occurs only where kneading is done by hand and is not found among those who handle only flour or yeast. The condition is due to immersing the hands and arms in the salt solution added to the flour, which is about 3.6 per cent in strength. Owing to the temperature of the bakehouse and ovens the salt crystallizes on the arms of the workman, and the process of kneading works the salt crystals into the skin, setting up a dermatitis in susceptible individuals. Cure was obtained by rest from work and local treatment.

Suggested prophylaxis consists in the use of a spray of fresh water after mixing the salt solution and at periods during the kneading process.

Bayer "205" a Powerful Trypanosomicide

Of a total of nine human cases of trypanosomiasis treated with Bayer "205," Low and Manson-Bahr report (*Lancet*, ii, 5181, p. 1265, Dec. 16, 1922) that of the eight infected with *T. gambiense*, seven are in good health and that one has died of cerebral trypanosomiasis. One individual infected with *T. rhodesiense* was greatly improved, though the results are not considered conclusive. The investigators state that "we can now say of Bayer "205" that, though not infallible, it is by far the most powerful trypanosomicidal substance hitherto employed."

Correlation is Made of Efficiency Tests

Williams, (*Journal A. M. A.*, Jan. 6, 1923), reports tests made on 108 students of the University of Nevada. There was, in this group, virtually no correlation between the Sargent physical test and the Schneider cardiac test for women of the age range seventeen to twenty-three years. The rather high correlation of 0.57 previously reported Williams believes was doubtless a change result and was due to the wide age range of the group tested, or to a possible difference between men and women. The Sargent and Schneider tests do not measure the same thing. Vigor,

stamina, "pep" that Dr. Sargent refers to are not the same qualities as are measured in Schneider's test. Whether Sargent's test is a good measure of physical vigor has not been determined; likewise, the reliability of Schneider's test is not indicated by this study.

Prevention of Diphtheria

The work of the Bureau of Communicable Diseases, New Haven, Conn., during the months of September, October and November was directed in the main against diphtheria. The figures for these three months as given by Lewis (*Monthly Bull. D. of H.*, New Haven, xlix, 12, December, 1922, are

City	Cases in 1921	Cases in 1922	Case rate, 100,000
Bridgeport.....	165	158	100
Hartford.....	131	143	100
New Haven.....	118	35	20
New Britain.....	47	108	170
Waterbury.....	40	57	60

Occupational Dangers of Myopia

Histories of myopes of over three diopters between the working ages of twenty to sixty have been classified according as they were engaged in close work all day or in manners of life which did not entail habitual close work. According to Harman, (*Brit.M.J.*, 3236, p. 58, Jan. 13, 1923), no less than 53 per cent came to a time when there was an unmistakable failure of ability to carry on because of serious eyestrain. Of myopes of the same types and ages who were not engaged in continuous close work 9.4 per cent experienced a critical failure of capacity. Those having myopia engaged in close work showed the following percentage of breakdowns:

Measurement	Breakdown
3-5 Diopters	33.7%
5-10 Diopters	66.5%
Over 10 Diopters	77.4%

Cancer Mortality in Baltimore

With the exception of 1815 and 1823, deaths from cancer have been recorded in the Baltimore tables of mortality in every year since 1813 and since 1875 have been classified by the organs affected. From a study of these sources Howard (*J. A. M. A.*, lxxx, 2, p. 71, Jan. 13, 1923) believes that "a very notable, though unfortunately a not accurately determinable portion of the observed increase in crude mortality rates from malignant and other tumors in Baltimore is

readily explainable on the basis of progressive improvement in diagnosis and statistical classification, and a rise in the ratio of deaths from these causes among non-residents drawn to a medical center particularly famous for the diagnosis and treatment of these maladies." He believes that while the evidence is not sufficient to prove that there has been no actual increase in the rate of cancer for all organs, at least it renders such an increase doubtful.

It is certainly clear that cancer mortality in this city cannot have increased in anything approaching the degree indicated by the crude rates. "For cancer of the only two organs, the breast and the uterus, for which rates approaching specificity could be obtained, it has been shown that in the forty years ending in 1920, mortality has not increased, and that during the latter half of this period there has occurred a gradual but very significant decline in the death rate which, in the absence of other satisfactory explanation, it seems safe to ascribe to medical activities."

Test for Pertussis

Reisenfeld (*J.A.M.A.*, lxxx, 3, p. 158, Jan. 20, 1923) finds no specific reaction to various preparations of Bordet-Gengou bacilli injected intracutaneously to prove the presence of pertussis or a natural or acquired immunity to the disease.

This differs from the findings of Oregel (See Digest for December, 1922).

Malta Fever

The first large outbreak of Malta fever in any city in the United States occurred in Phoenix, Ariz., during the summer of 1922. The outbreak resulted from the sale of goat's milk by a high-class dairy, whereas practically all the indigenous cases previously reported in this country were directly connected with the goat-raising industry. More than thirty cases were positively diagnosed, two of them proving fatal in patients already more or less invaded by other infections.

Agglutination tests for *B. melitensis* made on scrums from 115 goats in one of the herds supplying milk to the dairy gave 18.3 per cent positives. Three of the authentic cases were typical clinically and serologically; and in two cases *B. melitensis* was recovered.

G. C. Lake calls attention (*Pub.*

Health Rep., xxxvii, 47, p. 2895, Nov. 24, 1922), to the liability of incorrect diagnosis and the probability that Malta fever is widely distributed, though unrecognized, throughout the southwestern states.

In Vivo Disinfection

Weise (*Ztschr. f. Hyg. u. Infektionskrankh.*, xc., p. 56) reports good results in wound disinfection obtained by the use of tryptaflavine, rivanol, and other substances of the acridin series. Schiemann and Baumgarten (loc. cit. pp. 247 and 284) also working at the Koch Institute, find that subcutaneous or intraperitoneal injections of these dyes may check a general septicemic infection in animals by a process of *in vivo* disinfection.

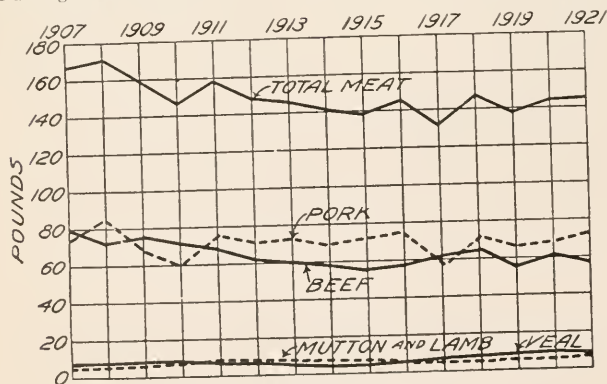
Heidelberg's Infant Mortality

Dresel and Fries (*Öffentliche Gesundheitspflege*, vii, p. 289) present the following statistics of infant mortality in various social groups of the population of Heidelberg.

Members of university circles.....	54
Professional classes	81
Officials and teachers	61
Merchants	90
Skilled laborers	156
Servants	163
Unskilled laborers	207

Meat Consumption

The accompanying chart shows the downward trend of the per capita meat consumption in the United States during the past fifteen years. (Food Animals and Meat Consumption in the U. S., Dept. Circular 241, U. S. Dept. of Agric.) Roberts states that from 1907 to 1911 the per capita consumption averaged 160.4 pounds, while for the years from 1917 to 1921 the average was 141.1 pounds.



Per capital consumption of meat, 1907-1921.

Kahn Test for Syphilis

Experience gained with over 23,000 Kahn tests, eight thousand of which have been reported to physicians parallel with the Wassermann test, leads Young (*Am. J. Pub. Health*, xiii, 2, Feb., 1923) to recommend the use of the Kahn test as a check on Wassermann reactions. The author believes that the use of both tests will help to reduce the element of skepticism associated with the older test and that such a procedure has a higher degree of accuracy than that of the Wassermann test alone.

Of the 8,070 parallel tests 93.754 per cent showed complete agreement; 5.353 per cent relative agreement; and 0.892 per cent no agreement.

Ban Books on Venereal Disease

The London correspondent of the *A. M. A. (J. A. M. A.)*, lxxx, 5, Feb. 3, 1923) states that a letter to the daily press by Sir G. Archdall Reid calls attention to the banning of books on the prevention of venereal disease in New Zealand. No bookseller will stock them unless he has a guarantee from a local physician. If such is the case, one might question the appropriateness of mentioning such a thing in a Digest of Sanitary and Hygienic Advance. "It is generally being recognized that the desire to prevent sin is one thing; a desire to secure the poisoning of the sinner quite another."

Height and Weight Ratios

The most interesting finding in a study of weight and height as an index of nutrition by Clark, Sydenstricker, and Collins (*Pub. Health Rep.*, xxviii, 2, p. 39, Jan. 12, 1923) is that 19.5 per cent of the boys were more than 10 per cent underweight by

Wood's standard, as against 28.9 per cent of the girls. Overweight also showed a larger percentage of girls who were outside the limit of 20 per cent above Wood's table, 1.3 per cent of the boys being overweight as against 3.2 per cent of the girls.

The New York Supreme Court, Dutchess County, upheld a regulation of the board of health of the city of Poughkeepsie, which in effect prohibited the sale of any milk, except grade "A" raw and certified, unless pasteurized. (*Pub. Health Rep.*, xxxviii, 3, Jan. 19, 1923.)

Cow Pox Outbreak

In October, 1922, cowpox appeared among the cows of a dairy farm in Pennsylvania and the farmer's family became infected. (*The Listening Post*, I, i, Dec. 1922, published in *Pa. Dept. of Health.*) The diagnosis, first doubted because of the rarity of the disease, was confirmed by the county medical director, a representative of the State Bureau of Animal Industry, and two representatives from the state department. No cows had been introduced into the herd within three weeks of the appearance of the lesions and it was subsequently shown that there was no cowpox in the herd from which they had been purchased.

On September 16, two boys of the family, who had until that time evaded the school vaccination law, had been vaccinated successfully. One of these boys the father called his "best milker." About two weeks after the vaccination of the boys lesions were first noticed on the teats of the cows. In a few days this condition had spread to the whole herd and to the hands of the farmer and his hired man. The younger children were apparently inoculated by the father. The nineteen months old child, who slept with his mother, had a fashion of rubbing his hands over her face. The mother developed six typical vaccination pustules extending from the point of the chin backward almost to the ear. The boys who had been vaccinated were the only ones to escape the multiple lesions.

Mercury Vapor Lamp in Diet Deficiency

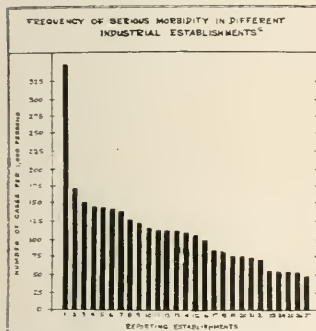
Radiation with a mercury vapor quartz lamp of rats fed on a diet deficient in vitamin A. by Hune (*Lancet*, ii, 5182, Dec. 23, 1921), shows that without irradiation normal growth ceased in from seven to ten days, whereas growth in the rats receiving

irradiation continued normal for a period of thirty-five to fifty days. Efforts to revive rats that had been on the deficient diet for ninety days failed completely and the rats seemed to "go to pieces" even more quickly.

Findings of Goldblatt and Soames (loc. cit.) agree in the most essential details with those of Hume. The former believe that radiation with a mercury vapor quartz lamp cannot indefinitely act as a substitute for the fat-soluble growth-promoting factor which is a necessary element of the diet.

Industrial Morbidity

Attention is called (*Pub. Health Rep.*, Dec. 29, 1922, xxxvii, 52, p. 3202) to the wide variations in the frequency of serious morbidity in different industrial establishments.



*Includes only those cases of sickness and non-industrial accidents causing disability for eight consecutive days or longer in the year 1921.

Rates are given for twenty-seven establishments based on cases of sickness and non-industrial accident causing disability for eight consecutive days or longer in the year 1921. From the lowest rate (48 cases per 1,000 persons) to the highest rate (349 cases per 1,000 persons) is a range of more than 700 per cent and, if the first establishment which appears to have an unusually high rate is excluded, the difference between the second highest and the lowest is in excess of 360 per cent of the lowest rate.

Such wide variation indicates a field for future conquest in industrial hygiene.

Etiology of Dental Caries

An examination of carious material by McIntosh, James, and Lazarus-Barlow (*Brit. J. Exp. Path.*, iii, 3, p. 138, June, 1922.) showed constantly the presence of a definite type of bacteria. These bacteria were capable

of producing a high degree of acidity by the fermentation of carbohydrates; the average final pH value of nine different strains being 2.75, which is sufficient to decalcify teeth. Teeth left in contact with a pure culture for a prolonged period, (seventeen weeks) showed changes almost identical with those found in natural caries. This treatment consisted in keeping them for one week in a pure culture at the end of which time the teeth were transferred to sterile medium. This transfer, without additional inoculation, was repeated at the end of each week in an effort to simulate conditions in the mouth.

The authors propose to give the name *B. acidophilus odontolyticus* to this type. The organisms resemble in their resistance to and formation of acid the "acidophilus" group of Moro; biologically, however, there are several points of difference.

Transmission of Antitoxin to New Born

Intradermal diphtheria toxin reactions in one hundred mothers and new born infants have been studied by Ruh and McClelland (*Am. J. Dis. Child.*, xxx, 1, Jan., 1923). Seventy-six per cent of the mothers gave negative reactions and 24 per cent positive reactions. Seventy-nine per cent of the babies gave negative reactions and 21 per cent positive. Eight babies giving negative reactions did not receive breast milk or colostrum before the reactions were read. The grouping of the mothers and babies was: Mother and baby positive, 20; mother and baby negative, 75; mother positive and baby negative, 4; mother negative and baby positive, 1.

The workers conclude that it must be a normal function of the placenta to transmit the antitoxin bodies from mother to child and that the immunity of the child is not a result of breast feeding.

Citric-serum Medium

Tests by Greenspon (*Bull. Johns Hopkins Hosp.*, xxxiv, 383, p. 30, Jan. 1923.) indicate that citric-serum medium is definitely superior to Loeffler's serum for the cultivation and isolation of diphtheria bacilli. The reaction of this medium is adjusted to pH 6.4 by means of citric acid, which serves a dual role, in that (1) it has a differential effect, inhibiting many of the common throat organisms which cannot grow at this pH, and (2) it has a growth accelerating effect on the diphtheria bacilli to which it apparently serves as a source of carbon.

Sachs-Georgi Test

Urquhart comes to the defense of the Sachs-Georgi test (*Lancet*, i, 5186, Jan. 20, 1923). He ran parallel flocculation tests and Wassermann reactions on one thousand sera with the following results:

Flocculation test positive, Wassermann reaction positive, 221.

Flocculation test negative, Wassermann reaction negative, 759.

Flocculation test negative, Wassermann reaction positive, 10.

Flocculation test positive, Wassermann reaction negative, 10.

Two per cent of tests (20) were divergent.

The conclusions based on this series are (1) that the flocculation test gives as reliable results as the Wassermann reaction, and (2) that the flocculation test is preferable to the Wassermann reaction on account of its greater simplicity.

Experimental Measles

The following summary is presented as the result of a study of experimental measles in rabbits and monkeys by Nevin and Bittman (*J. Infect. Dis.*, xxxii, 1, Jan., 1923).

In the first series of animals the virus of measles obtained from patients with measles on the second day of the disease was passed through 4 rabbits and then produced symptoms typical of measles in a monkey.

In the second series of animals the virus obtained as stated was passed through 3 rabbits and then through 3 monkeys in which symptoms typical of measles were produced. The monkey to monkey passage eliminated any question of rash due to foreign protein.

A control monkey injected with normal human blood showed no reaction.

Effects of Inbreeding

Dr. Sewall Wright of the U. S. Department of Agriculture has conducted a lengthy experiment on The Effects of Inbreeding and Crossbreeding on Guinea Pigs. (*Nov. 15, 1922. Bulletin, U. S. D. A., No. 1090.*)

In summarizing his work Wright says "there has been an average decline in vigor in all characteristics during the course of thirteen years of inbreeding of guinea pigs, brother with sister." The decline was most marked in the infrequency and size of litter. The decline was greater in the gains after birth than in the birth weight, and greater in the percentage raised of the young born alive than in the percentage born alive.

A comparison of inbred guinea pigs with a control stock indicates that the inbreds have suffered a genetic decline in vigor in all characteristics.

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The Victories of Public Health

A RECENT statistical summary¹ reviews the progress which has been made in the reduction of the death rate of New York City during the past fifty-four years; and the results accomplished, seen in this long perspective, must furnish the most case-hardened student of vital statistics with a thrill of pride.

The data of chief interest, re-calculated in the form of death rates, are as follows:

Deaths per 100,000

	1868-72	1921	Per cent reduction
All causes	27.58	11.17	60
Pulmonary Tuberculosis ..	3.82	0.89	77
Diarrheal diseases under 5 years	3.23	0.37	89
Scarlet fever	0.97	0.07	93
Diphtheria	0.86	0.16	81
Smallpox	0.54	0.00	100
Whooping cough	0.36	0.06	84
Measles	0.35	0.03	94
Typhoid Fever	0.34	0.02	94

A reduction of 60 per cent in the total death rate; of 77 per cent in the tuberculosis death rate; and of from 80 to 100 per cent in the acute com-

municable diseases—surely this is a record in which every public health worker may take profound satisfaction.

Translated into terms of individual human lives, this means that whereas there were actually 64,257 deaths in New York City in 1921, there would have been 161,150 deaths if the conditions of 1868-72 had still obtained. Nearly one hundred thousand lives saved in a single city and in a single year by the advances of science and civilization. Surely "peace hath her victories no less than war."

Henry Street Settlement and Nursing

VERY impressive were the dominant tones of achievement and promise that rang in the words of the speakers on public health and public health nursing at the ceremonials and conferences that accompanied the formal dedication of the new central administration building, presented to the Henry Street Settlement by Mrs. Jacob H. Schiff as a memorial to Mr. Schiff. Even more striking was the evidence of wide interest and warm good will offered by the press and by the audiences which, throughout the five days, thronged the building to its utmost capacity. The entire demonstration was one which proved the public regard won by the visiting nurse.

¹ Department of Health, City of New York. Condensed Annual Report for the year of 1921. Summary of Results Obtained by Fifty-Four Years of Public Health Work.

Resumés of past conditions and of the present status of health conservation, with special reference to New York, were given at the conferences; the initial steps in many efforts were recalled; comparative statistics were heard, and records given out of things well done. There were also admonitions and reminders of further advance needed in many directions, most emphatically in the field of educational preparation for varied and growing responsibilities of the public health nurse.

To those who can look back upon the past thirty years in public health nursing, the distance that has been covered is little short of amazing. The scattered early groups of from two to ten visiting or "district" nurses in our country are now a national army of over 11,000. The one first school nurse, experimentally placed in a New York City school in 1902 now has over 3,500 followers who are busy in schools all over the country. Indeed, the school nurse has become the advance guard of the public health revolutionary movement in many remote places. Where the church or dispensary first sent the nurse to its own small circle, we now have municipally controlled nurses, state nurses, and nurses under the Federal government.

Looking back, the high lights in the picture of health conservation with resulting stimulus to the extension of nursing services are: the founding, in 1912, of the Federal Children's Bureau, which has brought about extraordinary advances in the standard of care for children in the ten years of its existence; the federation, in 1912, of the public health nursing groups into the National Organization for Public Health Nursing; and the development under the American Red Cross of an immense network of nursing services to the people in rural districts and the small towns, and the stimulus given to the inception of similar work in foreign countries. With this must be linked the opening of the college and the university to the nurse who asked for higher training for the social implications of her work. This enterprise at Teachers College, still far in the lead, has been taken up by many other educational institutions which are now endeavoring to meet this urgent need.

Perhaps of all the forces within our public health nursing the most deeply and subtly influential has been the fact that by the venture of nurses into neighborhood life and their adoption of the settlement idea of reciprocity in neighborliness and, further, by their democratic basis of service freely offered, to be requested and paid for by the patient, a popular appeal has been made which was irresistible. By this simple action the

restrictions of the early associations were put aside. An intermediary was no longer necessary to bring the nurse to the patient. The ancient stigma of charity was dropped, and no limitations once fixed by caste or cult were retained. Miss Brainard in her book "The Evolution of Public Health Nursing" says, "the idea of paid service and the removal of charity revolutionized the relationship of the visiting nurse to the patient. It was the beginning of the broad community service for all which has since become available in many places." Still further, the democratic principle brought trained women into the management and direction of their own work. The vitalizing results of this may be seen on every side.

The future of public health nursing contains duties and problems that increase in complexity with the rush of modern life. The new central administration building at 99 Park Avenue, New York, will, it is hoped, help to recreate continually the inspiration needed for laborious days, and if the ideals held for it are realized, and nurses working in the field of public health may meet there and, in a congenial atmosphere, give and receive, teach and learn, the intent of its founders will be fulfilled.

The recognition of their achievements and their potentialities is expressed in the inscription on the fireplace in the beautiful assembly room:

"... Dedicated to the cause of Public Health Nursing which he (Mr. Schiff) long fostered for love of Progressive Education, Civic Righteousness and Tender Ministration."

The District vs. the County Plan of Public Health Work

A FEW years ago there was much division of opinion and considerable discussion among public health officials as to the relative value of the district health office and the county health office in the development of an effective program of health administration. Some believed that a state health administration, in extending and intensifying its field work, should take the first step by organizing district offices, with each office in charge of the health work of a group of counties; others believed that the state administration should begin the enlargement of its field work by encouraging and bringing about the development of the full time county health office; still others saw no incompatibility in the two plans for the development of field work, and refused to become greatly exercised over an issue more apparent than real. This latter group realized that if the district office was first established it would, in developing the health interests and activities of the group of counties within the dis-

strict, lead inevitably to the development on the part of the counties of some sort of full-time health government; they knew, too, that the development of county units of health work would call for a certain amount of supervision, correlation and standardizing direction for a limited number of counties, in other words, that the county plan would lead to the district plan.

Experience has verified the predictions of this latter group, namely, that in the proper development of field activities in a well organized state department of public health both the district and the county offices would be called for, and that starting at either end of the road, the county end or the district end, if we go the whole course, we shall justify, indeed, find the necessity for, both the district and county office.

The only question of practical value in public health administration which remains to be answered is this: in what order should the district and the county offices be established; which should be primary, which secondary. We believe that the weight of experience and opinion justifies the view that the county organization should precede the development of the district organization. The central bank or clearing house necessarily follows, and does not precede, the organization of local banks. Without having made a detailed study of the development of field work throughout the country, general observation impresses us with the fact that the field health service has developed much faster in those states whose primary field organization consisted of county units than in those states whose first efforts were in the direction of the district office.

The reasons why the county plan of development has proved the most satisfactory point of attack are: (1) The county is a more established, better functioning unit of government than the district, the district being more for purposes of election with respect to a relatively few offices—congressmen, judges and solicitors—than for purposes of governmental service. The arrangements for the expression of mass will and for official response to public opinion are much looser in the district than in the older, more firmly established form of county government. A county may act with a great deal more freedom of movement than a district. (2) Counties are more numerous than districts. There are more counties to which public health may be presented and sold than there are districts, in short, the field of trade is much larger. (3) The interest of the county is in a problem that lies much nearer to it than the interest of the district and its problems. The county problems are better defined and more clearly visualized. (4) Last, and most important of all, the

county idea involves the element of self help, of expenditure by the local government, whereas, the district office represents the idea of help from without, expenditure by the state. Government is more permanent and satisfactory when it is based upon the development of the interest and activity, in short, the participation of the governed, than it is when the government is furnished and paid for by some distant or outside agency.

The Germ of Typhus Fever

AN EARLIER issue of THE NATION'S HEALTH¹ contained reference to the important contributions to the problem of the etiology of typhus fever made by Dr. Wolbach and his associates in their studies at Warsaw. At a meeting of the Society for Experimental Biology and Medicine in New York on January 17, Dr. Wolbach carried his researches in this field materially further by announcing the cultivation of *Dermacentoroxenus rickettsi* (the causative organism of Rocky Mountain Spotted Fever) and the production of the disease in animals from pure cultures under carefully controlled experimental conditions. The task was accomplished by cultivating endothelial cells in vitro after the method of Harrison and using these living cells as the basic medium for the growth of the parasite. Similar studies with *Rickettsia prowazeki*, the probable cause of typhus fever, using cultures of cerebral cortex, have yielded similar results to the extent that tissue cultures of *Rickettsia* fourteen days old will cause the characteristic symptoms of typhus in guinea pigs. Actual multiplication (as distinguished from survival) has not yet been certainly demonstrated in this case. If the cultivation of *Rickettsia* and production of typhus from pure cultures finally proves successful it will constitute a contribution of first rate importance to the etiology of the communicable diseases.

Respiratory Disease in Industry

THE United States Public Health Service has recently published two reports dealing with sickness among industrial workers. These reports, while covering too small a number of workers and plants to be conclusive, are very suggestive. The first report² deals with the morbidity record of a large tire factory employing many thousand employees and covers a period of three years. In this report one of the outstanding features is the importance of respiratory dis-

1. Etiology and Pathology of Typhus. The Nation's Health, p. Adv. 36, September, 1922.

2. Disabling Sickness among Employees of a Rubber Manufacturing Establishment. Public Health Reports, xxxvii, No. 50, p. 3085, Dec. 15, 1922.

ease as a factor in both the mortality and the morbidity of the workers.

The mortality percentage for disease was headed by pneumonia 26%, influenza-pneumonia 18%, and tuberculosis 7%. The morbidity percentage for disease was headed by influenza and grippe 17%, tonsillitis 7%, colds 6% and bronchitis 4% of total lost time. Thus both in mortality and morbidity, respiratory disease led all other forms of sickness.

The second report³ deals with the incidence of serious morbidity among a group of wage earners and is compiled from statistics obtained from twenty-seven establishments. In this report is a chart showing the seasonal incidence of certain respiratory diseases, the variation showing, as might be expected, a January peak and a July valley, over a three-year period.

Respiratory disease is probably the greatest single cause of lost time now existing in industry. Because of the recent influenza epidemics, susceptibility to all diseases of this class appears to be increased. While control is very difficult, certain measures can be taken to reduce contagion.

The National Lamp Works⁴ has recently initiated the use of a spot map by which each case of contagious disease is marked on a chart of the factory showing geographically the exact position of each focus of infection.

The industrial physician may also call attention to the danger of contagion and the possibility of prevention by notices and talks. Finally, the industrial dispensary may reduce the morbidity by early treatment, sound advice, and prophylactic measures. It is to be hoped that some standard method may be developed to control the outbreaks of respiratory disease in industry during the winter months. The common cold, which in most cases is the beginning of many forms, is undoubtedly very difficult to prevent or cure. To what degree isolation would help is questionable. Most factories are loath to try an experiment involving such expense without some evidence of its probable success.

Treatment which, if started early, will surely reduce the period of disability and contagion is still to be found, and although vaccines have proved satisfactory in some cases, wholesale vaccination of an entire factory force has never been tried.

Any investigation which will throw more light on the prevention of the early forms of respiratory disease will be welcomed by industrial physicians and public health workers.

Noise as a Neglected Problem in Industrial Hygiene

AMONG the many environmental problems affecting the comfort and health of the industrial worker, none has been more neglected in the past than that of noise. The conclusions of various clinical observers in regard to the influence of noisy occupations, as reviewed by Glibert¹, are conflicting. Certain physicians report a highly abnormal frequency of deafness among railroad workers, blacksmiths, and the like—a frequency progressively increasing with increasing length of service. Other physicians report negative results; and the question of increase with length of service is obviously complicated by the normal influence of the age of the individual.

Among the most important experimental contributions to this subject are those of Wittmaach². By actual study of the influence upon guinea pigs of sound vibrations transmitted respectively, through the air and by direct contact (from a vibrating floor in the cage) this investigator found that the former had no influence and the latter a very marked influence, shown particularly in degeneration of the nerve endings in the cochlea and of the organ of Corti. Peyser³ concludes from these, and other researches that (1) a continued noise of moderate intensity, transmitted only through the air, has little or no influence upon the organ of hearing; (2) noises of short duration, but intense or very shrill, particularly if repeated, injure the organ of hearing, temporarily or permanently; (3) the transmission of noises simultaneously through the air and through vibrations communicated to the skeleton, particularly through vibrations of the ground, affect the organ of hearing definitely and seriously.

This is surely a problem in regard to which we need more light. It would be of great interest, in the first place, to have careful observations by industrial physicians as to the acuity of hearing among groups of workers of similar age employed in quiet and noisy workrooms. The scientific study of this problem must finally depend, however, upon the devising of a simple and satisfactory method of estimating the extent of the noise hazard. It would be easy to do this for a noise of specific pitch by, for example, dropping a ball mounted on a wire from various heights on to a resonant plate and determining the height from which it must fall to be heard over the noise in a given workshop; but the problems of varying pitch would seriously complicate the situation, as would subjective variations in the acuity with

3. Morbidity among a Group of Wage Earners. Public Health Reports, xxxvii, No. 52, p. 3195, Dec. 29, 1922.

4. Bunn, William H.: Use of a Spot Map in the Industrial Dispensary. J. Indust. Hygiene, iv, No. 7, p. 293, Nov., 1922.

1. Glibert, D.: L'Influence des Bruits Industriels. Bul. du Service méd. du Travail. Ministère de l'Industrie du Travail et du Ravitaillement. Royaume de Belgique, No. 1, p. 30, Brussels, 1920.

2. Cited by Glibert.

which different noises are perceived. The fact that workmen accustomed to a noisy atmosphere can converse easily while a stranger cannot catch a word illustrates how diverse may be the physiological factors involved in such a study.

The Maintenance of Health Among Store Workers

ABSENTEEISM among store workers is one of the preventable wastes, whose roots lie deep in the general physical condition of the community. Evidence is rapidly accumulating to show that many of the causes of absenteeism in the industrial age have their beginnings in the uncorrected defects of the school age, or even the pre-school age.

The paper by Dr. C. A. Swan in this issue of *THE NATION'S HEALTH* brings forcibly to our attention how far preventive medical methods have been effective in one of the leading stores of the country.

On the basis of physical examination of entrants, adjustment at a suitable job is effected. Defects found are followed up and corrected. Illnesses and injuries are handled to reduce lost time. Re-examination gives confidence of health and vigor. Returns from illness are seen and chronic cases thus often discovered. The general confidence from such health supervision has markedly increased the morale. The management has found such health work pays and has steadily developed the health department.

This paper gives a standard of comparison for other stores. It demonstrates the advantage of keeping good records and studying those records intelligently, so as to apply their lesson to the future.

One more field, that of the store groups, is thus put into the reporting class. One more field is developing its health needs, the technic of meeting them and, by reducing preventable human waste, is contributing to the slow steady advance and spread of public health.

Demographic Studies in New York

STATISTICAL "Sources for Demographic Studies of New York." What a jaw breaker!

And when we say that this is the title of a ten pound book of almost undiluted tabulations of that great municipal empire's multicolored family it will be understood that this is not to be one of the season's best sellers.

But everyone is interested in his own portrait; also, the world admires courage and imagination. So we can but wonder at and praise the vision of

those who have built the sharply patterned mosaic of cosmopolitan, polyglot New York.

This truly great volume, produced under the auspices of the New York City 1920 Census Committee by the labor of that devoted statistician, Walter Laidlaw, was made possible in part by the previous publication upon the 1910 census, issued by the New York Federation of Churches, and, in part by the subsequent agreement between the chief statistician of the Population Division of the Census Bureau and the Board of Health of New York City in 1914 as to the units of uniform area, (approximately 43 acres each), the sanitary tracts by which the 1920 and every subsequent Federal census will be collected.

Here we have at last for the smallest practical permanent unit of population, all the information which in the past has been published only for whole cities, counties, or for constantly changing political units of population.

Well, what of it? How does this affect human happiness, safety, government, business, health, social organization?

Just so . . . Well, if you found that by turning to one of the pages between 2 and 918 you would find the exact facts as to age, race, sex, mother-tongue, home-ownership, and literacy of every person living within one block of you, would it not seem worth while to you if you were an insurance agent, a milk distributor, a school teacher, a visiting nurse, a settlement worker, a police captain, a minister, or a real estate agent?

The volume of tables, with its introductory monograph of the population movement in New York City and the nation since 1790, the handbook with its explanatory analysis of the original data, and the map of all boroughs of the city now used as the basis for practically all the administrative public and private health and social agencies of the community, constitute the indispensable background and statistical sources for any intelligent analysis of the innumerable undertakings in the fields of commerce, industry, transportation, government, relief, education, sanitation and recreation upon which the welfare of six million people depends.

Look it over and you'll linger among its pages because of the resemblance of New York City to a cross-section of all the world. Study it and you'll earn respect for its possibilities for answering some of the queries as to causes and effects in preventive medicine. Additional comment on this book will be found elsewhere in this issue of *THE NATION'S HEALTH*. Primarily for New Yorkers, it is a volume of national importance, a suitable mathematical counterpart to Charles Booth's "Life and Labor of the People of London."

HEALTH IN INDUSTRY

*Problems Concerning Factory Sanitation,
Industrial Medicine, and the Health and
Efficiency of the Industrial Worker*

Revamping Medical Legislation in Pennsylvania*

**New Situations Call for New Legislation,
But Educational Standards Can Be Fixed**

By FREDERICK L. VAN SICKLE, M.D., EXECUTIVE SECRETARY, MEDICAL SOCIETY OF THE STATE OF PENNSYLVANIA, HARRISBURG, PA.

THE subject of legislation has never been interesting to the average medical practitioner; and yet medical legislation is as much the business of the medical profession as is any other of the affairs outside the regular routine of practice. Every two years the Pennsylvania legislature meets, and it is seldom that a legislative session does not present problems which seriously affect the medical profession.

The present discussion has received the title, "Revamping Medical Legislation in Pennsylvania." To "revamp" is to make over an article to look like new; and this is practically what happens to Pennsylvania legislation every two years. There is not much new legislation, but there is usually an effort made so as to change the laws affecting medicine and the allied branches of the healing art that they are supposedly remade and thereby benefited. Many times that revamping proves to be a detriment, and opinions are frequently expressed to the effect that medical legislation would better be let alone. However, there are some matters which it is feasible to discuss.

In the November number of the *Pennsylvania Medical Journal*, the various topics were outlined that may receive attention during the coming session of the Legislature. During the session of 1921, the governor ap-

Medical legislative matters differ in no respect from other procedures which require expert opinion for their rational direction. Nor do health projects differ from other measures in being open to emasculation by opposing interests.

The only permanent safeguard is the enlightenment of the public which is taking place through popular health education. Meanwhile, the whole rank of the medical profession needs to become active, alert, even aggressive citizens, permitting neither faddist nor fakir to impose upon the credibility of the uninitiated.

pointed a Commission on the Reorganization of the State Government, which is to report its findings on the advisability of reconstructing the various commissions, boards, and bureaus, with a view to economy and efficiency. We are reliably informed that this commission has in mind the advisability of suggesting to the governor and the legislature the need of combining the various boards and bureaus on the examination and licensure of those who practise the various forms of the healing art which are now in existence. If this report is accepted, a bill will prob-

ably be introduced which will create in the Department of Public Instruction a division of examination, licensure, and registration of those who practise medicine, pharmacy, dentistry, and the others of the ten divisions which are now in existence in this state, and which will care for any others which may in the future apply for the privilege of practising any form of the healing art.

Several meetings have been held with the representatives of the boards and bureaus which would be affected, and the matter has been discussed at length. The medical profession and all others affected should give earnest study to this subject; and, if such a bill is presented and shows a possibility of improving the conditions now existing, it should be favored by all concerned. This will constitute one of the most important features of the medical legislative revamping of 1923.

The next important subject for revamping is the Workmen's Compensation Law, which was passed in 1915 and amended in 1919. Since the passage of the amendment which distributed compensation between the physician and the hospital in a more equitable manner, a decision has been rendered by the chairman of the workmen's compensation board which has not been well received by the industrial surgeons of the state. The case in point is the decision of Harry A. Mackey, chairman of the Board, which has made it impossible for sur-

*Read before the Sixteenth Conference of Industrial Physicians and Surgeons, Pittsburgh, Pa., November 17, 1922.

geons on the staff of a hospital to collect for services rendered to the employee while in the hospital, if the insurance carrier does not feel disposed to pay the bill without appeal. It appears that unless a contract has been entered into between the employer and the surgeon prior to the service rendered to the employee, the surgeon is unable to collect his fee. This being unfair and unjust, the Compensation Act will be revamped if possible, in this respect. There are three important points connected with this subject:

(1) The line of division between the hospital and the surgeon should be so clear and distinct that no one can misinterpret the law. The bill of the surgeon and the bill of the hospital must be entirely separated.

(2) Compensation should be granted, not only for the first thirty days, but it should be possible, in the great state of Pennsylvania with its vast resources, to pay the surgeon for his services until the patient is rendered competent to resume some form of occupation—either his regular occupation or some other light work. This legislation should be so revamped that Pennsylvania shall be on a par with her sister states in this regard.

(3) The surgeon and the hospital should receive compensation for services rendered, irrespective of whether the patient survives beyond the ten-day period or not. Industrial physicians are too familiar with that portion of the law which states that collection for services cannot be made in case of the death of the employee within the ten-day period.

There are other minor changes in the Workmen's Compensation Law from the viewpoint of the physician and surgeon that should receive attention; and probably, when this matter is taken up, these various defects will be remedied.

The Conference of Industrial Physicians and Surgeons is the ideal place from which should emanate suggestions to the medical legislative conference of Pennsylvania for amendments to the Workmen's Compensation Act. Industrial physicians particularly have had more or less experience since 1916 with this service, and suggestions coming either from individual members or from the Conference are always in order.

Physicians, as a rule, have not interested themselves in legislation; but the time is at hand when more and more of the doctors of Pennsylvania and indeed of every other state are awakening to the need of being informed and of taking an active part

in legislative affairs, medical and otherwise.

For some years past there has not been a session of the Legislature in which someone did not make an effort so to revamp the laws as to prevent the vaccination of the people of this Commonwealth to prevent smallpox. Others endeavor to prevent the use of animal experimentation, thereby curtailing the possibility of research work for humanity's sake. Still others would throw open the practice of the healing art to the illiterate, the uneducated, and almost to anyone, to practise any form of healing that he may choose, so that he may feed upon the credulity of the people of this state. It has been necessary to put up a stiff fight to prevent uneducated people from obtaining the necessary legislative control to give them boards to pass upon their qualifications that would be entirely in sympathy with the few requirements asked for. At the present, we are in the attitude of defense when any of these cults apply for permission to practise the healing art without the necessary preliminary and pre-medical qualifications.

Standards Should Be High

Every practitioner of medicine in Pennsylvania would indorse the statement that the medical profession is not antagonistic to any therapeutic measures that will really relieve or cure the ills of the human family, provided that individuals proposing to practise the art have acquired the necessary preliminary education: four years in high school, with two, or possibly three years of pre-medical instruction in college, and a three years' course in the study of the special branch which the practitioners wish to pursue—these three years to be in separate calendar years, and of at least six months' duration each. This should be the minimum standard of requirements. And yet each biennial session sees the ignorant applying for the same privileges as have been acquired by the medical student who has spent seven long, wearisome years in study!

The public at large criticizes the medical practitioner for opposing legislation asked for by these people, and impugns his motives as being antagonistic from a purely "dog-in-the-manger" attitude. Apparently no amount of explanation or discussion will make plain the professional attitude, and it seems best simply to proceed along the line of opposition until such a time as the state itself will be prepared to define the necessary requirements of

anyone who wishes to practise any form of the healing art.

We receive from people in many sections complaints about those who are practising illegally some branch of the profession for which they are not licensed. Complaint is frequently made of an osteopath administering drugs; of a nurse treating injuries in industrial cases, the attendant industrial physicians not being present; of a midwife doing obstetrical operations. Physicians are frequently appealed to for the correction of these abuses. The medical profession itself has too many glass windows in its house to be forever throwing stones at its neighbors. May we not realize the necessity of living right ourselves, purging our profession of at least the more glaring defects, visible even to the public eye—cooperating for the purpose of keeping our profession efficient? We shall then be able to convince the public of the defects of others.

It is, nevertheless, true that we should not relax in our efforts to prevent those who are incompetent from practising their arts on the people. To a certain extent, it is the province of the physician to be his brother's keeper. Being educated in the healing art, the physician should the more readily see the dangers which the public is unable to discover, and should act in the capacity of warning agent, even though his motives may be misinterpreted.

The 1923 session of the legislature, considers the subject of health centers and other forms of medical practice with which the medical profession must become acquainted. It is, therefore, the duty of every member of the Conference of Industrial Physicians and Surgeons to be so alert to the interests of organized medicine that, when the profession is informed of the introduction of such bills as affect the practice of medicine and surgery, the physicians in industry may aid in securing the passage of meritorious bills, and in rendering effective opposition to those which are prejudicial to the best interests of the people of the Commonwealth.

The University of Pennsylvania graduate school of medicine is planning a course in modern graduate medical instruction for physicians in their own towns. Dr. George H. Meeker, dean, is working on the plan whereby professors will be sent at stated intervals to lecture and conduct clinics for doctors in various parts of the state.

Causes of Absenteeism Among Store Workers*

By CHARLES A. SWAN, M.D., MEDICAL DIRECTOR, THE HALL BROTHERS COMPANY, CLEVELAND, O.

MERCANTILE health service being a comparatively recent application of preventive medicine, little information is available as to absenteeism due to illness or injury. In the mercantile establishment however, as in the manufacturing plant, one of the important functions of the medical department is to reduce the number of absentees. The percentage of employees found to be absent each day justifies a careful analysis of the factors governing this absence, and the object of this paper is to present with a few comments some of the factors causing absence in a mercantile establishment having about fifteen hundred employees.

What diseases or what symptoms most frequently cause absence? What relation does age or sex have to absenteeism? What relation does the physical condition of employees as found in routine physical examinations have to absence due to illness? If we can answer some of these ques-

high school graduates. Very few employees are at hazardous work, and, as a result, serious injuries are rare, though minor injuries are common. The large majority are doing light work indoors and the resulting lack of exercise and fresh air seems to make them susceptible to illness. Most of the absenteeism is due to illness, often minor illnesses, rather than injuries.

The chart giving a classification of the common causes of absenteeism, is based on records for a period of six months, including both winter and summer months. There are three points of particular interest in it.

(1) There is a striking predominance of acute upper respiratory infections as a cause of absence. If we could eliminate this one factor, almost 40 per cent of our absenteeism would be taken care of. (2) Considering the fact that 65 per cent of the employees are women, dysmenorrhea is less important than one would expect.

rate on account of an epidemic of acute upper respiratory infections. As the summer months are approached and the amount of illness decreases the percentage of absentees drops, reaching its lowest level in July and rising again in the fall.

With regard to the relation between sex and absenteeism, the women have an absence rate over two and a half times that of the men and the married women are absent 58 per cent more than the unmarried. One might expect, on first thought, that the frequency of absence among women, would be due to conditions peculiar to the sex, such as dysmenorrhea. However, while this is true to a certain extent, the explanation seems to be more that the women are more susceptible to all types of illness than the men, and that they are more likely than the men to consider minor illness as sufficient grounds for absenting themselves from work.

As to the relation between age and absenteeism, the employees are divided into two classes, juniors and seniors, most of the juniors being under nineteen years of age. The absent rate among the seniors is 41 per cent higher than among the juniors, the explanation probably being that the younger employees are in better physical condition and, as a result, less likely to be ill. In these days of medical supervision of school children, of nutrition classes, and of compulsory correction of minor physical defects, the younger generation is undoubtedly in better condition than the older.

We have been much interested in observing this relation between the physical condition of the employees and absenteeism. All applicants are required to have physical examinations before employment, and we have been in the habit of rating each employee according to his or her physical condition. Class A employees are in good health and have no defects of any importance. Class B includes those who have minor defects but are able to undertake any type of work. Class C is comprised of those who have more serious defects so that their physical condition has to be taken into consideration in employing them. Many of these are able to do only certain type of work and are kept under observation.

That a very definite relation exists

COMMON CAUSES OF ABSENTEEISM

MARCH 1ST TO AUGUST 31ST 1922

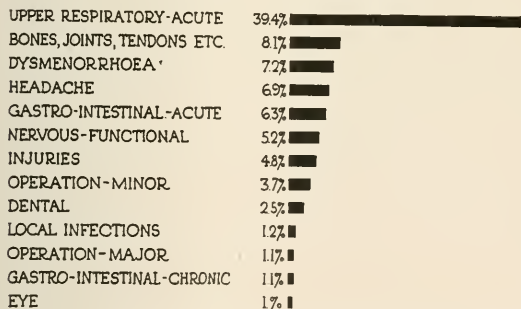


Chart I.—Based on a period of six months which includes both winter and summer months. Respiratory infections predominate. Injuries are seventh in importance as causative factors in absence from work.

tions, we are in a position to deal intelligently with the problem.

A mercantile establishment differs considerably from the manufacturing plant in its class of employees and the conditions under which these employees work. The employees as a group are probably better educated and are certainly more intelligent than in the average manufacturing plant. There are a number of college graduates and a great many

(3) Injuries come seventh in the list, causing less than five per cent of the absence. Furthermore, this includes injuries at home as well as while employees are at work. While a factor to be considered, it comes far from assuming the importance that it does in a manufacturing plant.

The chart giving the average percentage of employees absent each month, gives an idea of the amount of absenteeism with which one has to deal and shows the curve of seasonal variation. The month of February showed an abnormally high absence

*Read before the fifty-first annual meeting of the American Public Health Association, Cleveland, O., October 16-19, 1922.

between the physical condition of employees and absenteeism, is shown by the fact that the Class B employees, those with minor defects, show an absence rate twelve per cent higher than those who are in good physical condition. The Class C employees show an absence rate 42 per cent higher than Class A.

In other words, the employees who need dental work, have uncorrected errors of refraction, are more than 15 per cent over or underweight, or have some other defect that many people would consider unimportant, are sick oftener and therefore absent more, than those who are in good physical condition. The relationship seems to be indirect rather than direct, as the disability does not cause the absence except that it makes him more susceptible to illness.

The employees who have organic heart lesions, hernias, or other more serious defects, are absent 42 per cent more than those in good physical condition, and the relationship here is also to a large extent indirect, the disability as a general rule, not being the direct cause of absence. By a simple computation, we find that, if all of our employees had defects corrected, which is possible with the large majority, the days of absence per year would be reduced by over two hundred and seventy.

Those who are making physical examinations and rarely rejecting except on the grounds of contagious disease, may meet with employers who consider physical examinations of value only if those who have defects are rejected. We certainly meet with applicants for positions who believe that the examinations are made with the idea of accepting only those who are in the best physical condition. To these people one should explain that the purpose of the examination is to discover those who are not in good health, or, who have physical defects, and, not to reject them, but to advise them, so that they may improve their health or have defects corrected. When these people can be shown from actual statistics, that the person who is in good physical condition, is absent from work less, has less sickness, there is an argument for the correction of defects that has considerable force.

A good deal of importance should evidently be attached to this relationship between absenteeism and the physical condition of the employees, but there are two reasons why there is not even a greater difference between the amount among those who have defects. First, certain injuries and ill-

nesses affect a large number of employees regardless of their physical condition. Second, individual attitudes towards bodily discomfort vary greatly.

We have been attempting to differentiate between preventable and un-

preventable causes of absence, and, in a period of six months, we have found about six hundred out of three thousand days of absence due to unpreventable causes. The attitude of the individual towards bodily discomfort, is a factor on which we cannot place too much stress. We have all seen every class of individual from the person who would like to work when he has fever and should be at home in bed, to the person who stays at home every time he has a headache or some other minor discomfort. Let us hope that some day some clever industrial physician will devise a means of discovering the latter class at the time of physical examination.

Mental hygiene has a very definite place in the solution of the problem of absenteeism. The cultivation in the individual of a healthy mental attitude towards any symptoms, minor or major, that he may have, is of inestimable value. Worry, anxiety, all these mental factors, have their effect on the health of the individual also, and, as a result, on the amount of time he loses from work.

It is evident that efforts to reduce absenteeism should follow along two lines; (1) the prevention of illness and injuries, and (2) improvement of the physical condition of the employees. Our most important problem in the prevention of illness is prevention of upper respiratory infections. Early and energetic treatment has been found to be of the greatest value. In connection with physical defects, the thoroughness of the phys-

ical examination is not as important as the thoroughness of the follow up system. All of those who are not in first class physical condition should be followed up and every effort made to have defects corrected.

Working along these lines we feel

PERCENTAGE OF EMPLOYEES ABSENT FEB 1ST TO SEPT 30TH

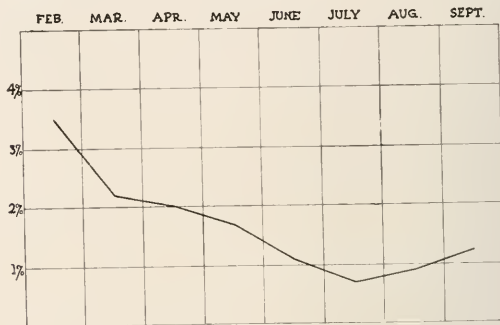


Chart II.—Seasonal variation in absenteeism is strikingly shown on this chart. An epidemic condition in February is to be taken into account.

that definite results can be accomplished, and, as the absenteeism is reduced, the value of the medical service is demonstrated.

The city of Calais, France, has started a municipal dairy and dairy farm, the milk from which is to be tested by health officers and the cows fed scientifically to keep the quality up to that prescribed for young babies.

Dr. H. S. Cumming, Surgeon-General of the United States Public Health Service, has been invited to join the League of Nation's hygiene committee. Dr. Cumming will also be asked to approve the plan of an international sanitary bureau with headquarters in Washington, to cooperate with the hygiene committee of the League.

Trafficers in drugs are made liable to \$500 to \$5,000 fine and one to ten years' imprisonment under terms of bill introduced into the House of Representatives Feb. 3 by Lineberger (rep., Cal.). Worldwide limitation of narcotic drug production was urged in resolution by Porter (rep., Pa.), chairman of foreign affairs committee.

Letters have been sent to all physicians in Maryland by the state board of health containing a copy of a law passed at the last session of the legislature conferring on individual physicians the powers of a county health officer in cases of emergency.

Seating Survey in the Garment Industry

Ill-Adjusted Chairs Cause Strain And Bad Posture in 250 Factories

By THERESA WOLFSON, EDUCATIONAL SUPERVISOR, JOINT BOARD OF SANITARY CONTROL, NEW YORK CITY.

THE survey of seating conditions in shops of the Ladies Garment Industry was undertaken by the Joint Board of Sanitary Control* for the purpose of ascertaining the problems with reference to posture of the garment worker and constructive plans which might be developed for proper seating and better posture. The survey was carried on in two hundred and fifty representative shops, both large and small, good and bad as far as sanitary conditions are concerned, and located in the new modern factory loft, as well as in the old converted three story brown house. An attempt was made to make the survey during a comparatively normal work season. There were employed in the shops under investigation at the time of the survey 2,528 machine operators, 1,774 hand finishers, and 734 pressers.

The Joint Board of Sanitary Control has been able to effect great improvements in the matter of shop sanitation, since its inception some twelve years ago. Despite the fact that the Ladies Garment Industry is large, employs thousands of workers, and involves millions of dollars, there has been almost no effort to solve the very important seating problem in the shops. This may be due to the larger economic factors affecting the industry; the fluctuating seasons, the great labor turnover, and the prevalence of the so-called fly-by-night shops. But whatever the reasons, this survey carried on by the Joint Board of Sanitary Control is an effort toward that solution. The investigation was undertaken with the cooperation of Miss Edith Hilles of the division of women in industry of the New York state department of labor.

When the average clothing factory is in need of factory chairs, an order is placed either with a small second-hand furniture dealer for kitchen chairs, or the porter is sent out to a half dozen basement stores in the vicinity, dealing in second-hand machines, pressing tables and chairs, and a heterogeneous variety of the cheapest chairs is picked up and sent to the factory.

All sorts of seating contrivances have been found in the course of this survey; ordinary crude benches, folding camp chairs, ice cream parlor chairs, straight backed dining room chairs, and ordinary kitchen chairs. Every effort to make the seat less uncomfortable has been found, boxes or pillows on chairs to make them higher or legs sawed off to make them lower.

Of the 256 shops inspected, 214 used plain kitchen chairs as the typical factory seat. In 14 shops round stools were used, and in 63 shops, benches of the crude work bench variety, fre-



Makeshift benches without backs cause round shoulders and organic weaknesses due to poor posture.

quently covered with cloth or material of some sort, were found. In two shops folding camp chairs were used and the workers struggled with a constantly collapsing seat or back.

The necessity for support of some sort for the back of the constantly sitting worker is generally recognized and yet in five shops, exclusive of the shops using benches and stools, chairs were found without backs. The worker when asked how he felt working without a back support claimed that, inasmuch as he was an operator, his position was one of constantly leaning forward and he didn't need a back support!

In the average factory the sewing machines are of a standard type run

by electricity. In 62 shops these machines were run by single motors, enabling each machine to be under the control of the operator at that machine. In 189 shops, the general motor giving power to all the machines and necessitating shafting was used, and in five shops both the single and general motors were found. The machines are usually placed on both sides of a narrow trough, approximately 16 inches wide, which is used for supplies or the support of the garment. This position of the machine necessitates machine operators facing each other, thus one row of workers usually faces the direct glare of the window light.

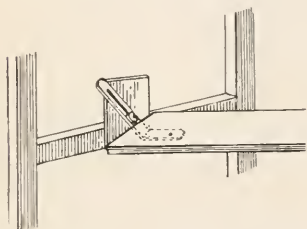
The machine operator was invariably found sitting at the edge of the chair, leaning forward, shoulders drooped, head bent low in an effort to follow the needle as it passed across the garment. The kitchen chair which was the most common seat found, gave practically no support to the operator's back. The back of the chair consists of five vertical rungs held together by a rounded piece at the top, and about 17 inches in height with the support coming above the shoulder blades, and so hollowed out that the small of the back received no support. The width of the seat varied from 14½ inches to 16 inches, and the depth from 15 to 16 inches. The seat was usually flat or saucer-shaped compelling a slouching position on the part of the operator when he sat back.

In fourteen shops there were found chairs and stools which were altered in height to suit the comfort of the worker. This represented a conscious attempt on the part of the worker to adjust the chair to his height. Instances of chair legs sawed off were found, several chairs were found with lead piping at the ends of the legs, to give greater height to the chair and thus prevent the worker's legs from dragging on the floor. Pillows and boxes, were also used to elevate the taller operators where the chair was too short. Every conceivable attempt to adjust the chair to the worker's height or lack of height was found. That the average worker appreciates the need of a properly adjusted seat and that he attempts to

*Pictures through courtesy of Joint Board of Sanitary Control.

secure this comfort to the best of his ability is evident.

The problem of workers engaged in the other operations of the garment trade is equally important. The finisher sitting at a small table with



This movable foot-rest was made by attaching to the table a flat board by screws to short iron pieces projecting from the ends.

her feet crossed, her back bent over the garment, her eyes close to her work, is a typical figure. The finisher used the same kitchen chair or straight backed chair that was commonly found, and the same means of adjusting these seats to the worker were also employed. The special problem of the finisher is the need for adequate foot support. In order to have a lap upon which to rest the garment, the finisher either crossed her legs or rested both feet on the ledge of the table or the rim of a finisher's basket.

The ordinary finishers' table is of the "wooden horse" variety with a small board nailed to the top of the horse, as a receptacle for pins, needles and threads, and a narrow wooden rail at the base of the stand which is ordinarily used as a support for the finisher's foot. Invariably this rail is worn to a thin strip as a result of the constant wearing away of the ledge by the foot of the worker. In only seven shops did these tables vary or was there an attempt to make the finishers' table suit the need of the finisher.

There were several constructive attempts to make the finishers' table more comfortable by the erection of spool rods on the board proper, and by attaching to the ends of the table a movable foot rest consisting of merely a flat board attached by screws to short iron pieces projecting from the ends as shown in the diagram. This is really an ideal support for the finishers' feet and tends to relieve the tedious round shouldered position. The finishers rarely get up from their seats, in fact, in only 14 shops did the operator or the finishers walk for their materials and thus relieve the strain of constant sitting. The need for adequate seating for finishers is

even more important than for other workers because their position is less varied and their posture constantly bad.

The Pressers' Problem

The third group of workers that suffer from bad posture are the pressers. The presser's occupation is such that he must stand on his feet all day long. The common ailments of most pressers, as a result of their occupation, are flat feet and varicose veins. Dr. Schereschewsky of the U. S. Public Health Service in his study in 1913 of several thousand men and women garment workers in New York City found that 55.3 per cent of the pressers had bad posture and that 72 per cent of the workers suffering from varicose veins were pressers; this notwithstanding the fact that the pressers were found to have the most robust physiques of the three types of workers. Interviews with both employers and workers relative to the possibility of sitting while at work, even on a high book-keepers' stool indicate this to be impracticable as yet. Since a variation of position is essential to elimination of fatigue, the next best thing is opportunity to sit and rest at frequent intervals during the day, giving relief to the feet and easing the strain.

The presser has another problem equally serious. The ironing tables are usually of standard height. However, attached to the ironing table is the ironing board which varies in height from 7½ inches to 10 inches above this table. The iron rest, where the iron, whether electric or gas, is placed, is anywhere from 12 to 25 inches away from the ironing board. Pressers declare it is necessary to have this distance in order to secure a "good swing" in the arm, as it comes down with the iron on the material. The weight of the iron used in the ordinary waist and dress shops or cloak and suit shops varies from 12 to 18 pounds. What is the result? A presser swings an 18 pound iron approximately 30 inches or almost a yard every time he presses—in fact the distance should be doubled for the operation is not complete until he replaces the iron on the rest.

The average presser makes about four complete circuits a minute. Therefore, he carries his iron practically 5,760 feet during the course of a work-day, allowing for interruptions of all sorts and exclusive of the actual pressing motions, which amounts to carrying an 18 pound iron a mile every day of one's working life.

The average height of a presser was found to be 5 feet, 5½ inches. The varying heights of the pressers also creates a problem; for the short presser does not reach the pressing board as easily as does the tall worker. Even here devices were found employed. Sixty-four shops were found with special tin flooring underneath the pressers' table in order to ease the strain of wooden floors against the feet. Several ways of raising the flooring in order to adjust the short workers to his table were found:—boxes, boards, planks from 1½ inches to 4 inches, varying with the height of the worker, were used.

There is little or almost no variation of position for most of the workers. Since the installation on the week work system, the work is brought to the operators, finishers, and pressers. In only 14 shops did the operators and finishers get their own materials and thus give themselves the benefit of moving their position.

Lighting for Operators

In making the study of lighting conditions, we found again the necessity of dividing the occupations into three groups and ascertaining the existing and necessary light for each of the operations of these workers. An illuminometer or foot candle meter was used to measure the actual light.

In only 145 shops of the 250 in-



An example of good seating. Adjustable chairs with proper back support have increased health and efficiency of the worker.

spected, was daylight sufficiently good to warrant the use of natural light. In 36 shops or 14 per cent of the total number, the operators were compelled to use both natural and electric light and in 38 shops or 15 per cent of the total, electric light was exclusively used.

The measurement of the amount of light for machine operators varies from 4 foot candle power daylight to 30 foot candle power; and from 4½ foot candle power, electric, to 25

foot candle power. It is impossible to present the great variations of light in different shops; it is sufficient to indicate that there still are shops where operators secure only four foot candle power of light on their work when the minimum standards set for machine work are 5 foot candle power, for light materials and 7 foot candle power, for darker materials.

In five shops there were found shadows cast upon the machine in such a way as to seriously affect the work of the operator. These shadows were the fault of poor lighting and in one instance a deep shadow was cast by a nearby partition in the loft. In 15 shops, a definite glare, because of the overhanging electric bulbs, was cast. This glare, of course, affected the eyes of the worker and hindered his clear vision.

In 22 shops, the lights were attached to the machine proper. This is an extremely bad method for the vibration of the machine invariably brings the vibration of the light, and the constant flicker produced is not conducive to good vision.

In 118 shops, finishers worked by electric light during the entire day. In 119 shops daylight was used, and in 19 shops both electric light and daylight were employed. The finishers' work is exceedingly exacting. The garment must be carefully handled and even the operator who must closely follow the machine needle



Kitchen chairs offering no support to the small of the back and of varying heights are found in many shops.

across the cloth does not require the same sort of light as does the finisher. Finishers must have a uniform light in which to work for it is essential that glares and contrasts in lighting be eliminated.

The pressers' work does not require the same intensity of light as does that of the operator or finisher. Therefore, the pressers' table is frequently placed in some corner of the shop where there is neither ventilation nor light. In 163 shops, the

presser used electric light exclusively, in only 80 shops was there sufficient daylight, and in 13 shops both electric and natural were used. These facts concerning the lighting in which workers must earn their living must be seriously weighed in the consideration of the entire lighting problem.

Certain established principles⁴ should be observed by every manufac-

ture value of good seating but the Joint Board of Sanitary Control realized that it must carry on its own experiment in New York.

Therefore, two large shops were chosen, one a cloak and suit shop the other a waist and dress shop. These shops were known as "A" shops, excellent sanitary conditions with good environment. It would have been



In addition to the bad seating shown here one row of workers must face a glare of light.

turer for his own benefits as well as that of his employees. (1) Amount of daylight admitted to interior should be as large as possible; (2) light should reach center of room; (3) distribution of light upon working planes should be as uniform as possible; (4) light should fall upon working planes from proper direction; (5) walls of room should be of such color and surfaces as to absorb but little light; (6) manufacturing and other equipment should be so disposed as to avoid casting extensive local shadows; (7) artificial illumination should be adequate for work to be illuminated; (8) uniformity of distribution of light is necessary; (9) glare effects should be eliminated; (10) troublesome shadows are to be avoided.

An Experiment in Seating

When the survey of two hundred and fifty shops was still being carried on, it became evident that though seating conditions were extremely bad nevertheless there were naught but general constructive principles to offer on the value of good seating and no concrete experiences in the clothing industry. It is true that large men's clothing factories like the Clothcrafts Shops of Cleveland and the Prinz-Biederman Ladies garment factory of the same city, have found the eco-

nomie better had we taken a small shop and contrast it with a large one, for purposes of experiment, but unfortunately this was impossible. Twelve workers were chosen in each shop, twenty-four in all, men and women engaged in different types of work, of different heights, racial, and physical characteristics, but all sufficiently intelligent to cooperate in this study. A physical examination was given to each worker by a competent orthopedic physician. The examination stressed certain points:—conditions of eyes, digestion, contour of back, shoulders, abdomen, feet, back, and hands, and other factors of the class of work performed by the worker.

Of the twenty-four workers, ten were operators, ten were finishers and four were embroiderers, doing exacting and detailed work. Six of the group were men. In shop A, the cloak and suit shop, six workers were found to have good eyesight, clear vision and comparatively little eye-strain. The other six had poor eyesight, considerable near-sightedness, and eye-strain, and were also suffering from extreme round shoulders, and bad contour of the back. This was undoubtedly the result of the need to lean forward in order to see the path of the needle.

Only two workers in this shop had perfect digestion, the rest suffered more or less chronic constipation, ag-

⁴D. H. Tuck's study of lighting in the garment industry in 1913 under U. S. Public Health Service.

gravated during the busy season of the trade when they were sitting constantly at work. The examination further revealed that seven workers suffered from a marked degree of scoliosis or lateral curvature of the spinal column, that eight workers had a condition of marked crepitus, and that six workers had pendulous abdomens. Four cases of marked flat feet and six cases of slight bow legs were found. It is true that such defects may have been a part of the worker's physique even before he started to work in the garment industry, but it is also true that the industry intensified these defects.

In testing the strength of the workers' hands the average was 70 pounds pressure, with the right hand and 60 pounds pressure with the left hand, although the lack of strength of the women finishers brought down the average considerably.

Defects Due to Seating

A similar examination was made with practically the same results in shop B, a high-class dress and waist shop employing all women ranging from 19 to 39 years of age, the majority of them Italian. Three of the four embroiderers had good eyesight, clear vision, but had been working at embroidery for a comparatively short period, the fourth having extremely bad vision had been doing this sort of work for several years. Of the remaining eight workers, three had bad eyesight with marked eyestrain.

The posture examination revealed four instances of marked curvature of the spine; seven cases of round shoulders; and ten cases of flat feet. The latter condition may have been aggravated by the prevailing use of extremely high-heel shoes. The strength of the hands averaged 50 pounds right, and 45 pounds left. All the workers in both shops suffered keen fatigue at the end of the work-day and had little spirit left to do anything else. Fourteen out of twenty-four workers suffered chronic constipation and were alleviated only when they were out of work and could walk around or sit in the parks.

After the physical examination, each worker was given a special chair to be used at work for a period of four months. These chairs were loaned by three different chair companies interested in working out a properly adjusted factory chair for the garment trade.

It was the plan of the study, to ascertain the extent of production as affected by the elimination of fatigue when good chairs are used, but inas-

much as the shops were of the better type where quality rather than quantity was the keynote, we were unable to secure statistics of production. In fact, all that was available was the testimony of the foreman who spoke for the employers, and the statements of the workers who were intensely interested in the experiment.

Bi-weekly visits were made to the factories at different hours of the day in order to ascertain just how much fatigue the worker had in the morning, after lunch, at three o'clock. During the first week the responses varied: "I'm not used to the chair," or "The chair seems queer," or "I feel fine in this chair," or to the response of one stout woman finisher who said, "This chair seems to make me less tired, my shoulders don't hurt so much, my eyes don't feel so tired—and my head doesn't feel so heavy!" From week to week the comments changed and valuable criticism of the chairs used were given by the workers. As soon as the workers became conscious of the fact that there was a seating problem they were the most valuable aids in eliminating certain features of the chairs which inconvenienced the operators or the finisher.

Certain principles were evolved to solve the seating question:—(1) The seat should be about 16 inches wide, slightly saddle-shaped to fit the back and seat of the worker; (2) front edge of seat should not cut into knees and thereby impair circulation; it should be rounded and not sharp; (3) chair must be adjustable to the height of the worker; (4) back support must be slightly curved and give support to back of worker, preferably a little below the shoulder; it should be adjustable; (5) chair must be comparatively light so that it can easily be moved; (6) chair should have firm base and not tip backward as worker leans back; (7) there should be no bars at the base of the chair to cut the operators' feet or ankles as he leans forward.

At the end of the second month an attempt was made to exchange the chairs and in shop B this was done. In shop A the workers wanted to keep their chairs, they had become so accustomed to them they did not want to change. This, of course does not mean that there were no criticisms of the chairs used. They were by no means perfect, but they were so far superior to the old type kitchen-chair that criticism merely improves them still further.

After a period of four months, the workers were examined. It is true

miracles were not performed, but the consensus of opinion of the workers was that they felt better, certainly less tired, at the end of the day than when they used the old kitchen-chair, and in the case of four workers there was a marked improvement in their general posture and an elimination of round shoulders.

This experiment carried on in an industry employing over 150,000 men and women workers is an index of what can be done with the cooperation of the manufacturers and the workers for the elimination of the evils of defective seating and resultant bad posture.

Science has established certain facts: first, that bad seating causes fatigue, secondly, that fatigue is responsible for bad posture, thirdly, that bad posture leads to deformities least of which are round shoulders, sunken chest, deviation of the spine. The economics of production has also established certain facts, the most pertinent being that tired workers retard production, and that properly adjusted seats and good lighting eliminate fatigue, and thereby increase production.

The Joint Board of Sanitary Control presents this study as the first step in the solution of an important problem in an industry which is probably one of the least standardized and least amenable to the so-called efficiency standards, and yet has a strong human sympathy for improvements indicated by progress.

New York's School Survey

Following its child health survey, the child welfare committee of the New York State League of Women Voters recommends a consolidation of rural school districts, more adequate building programs, enforcement of the state medical inspection law with regard for the spirit rather than mere compliance with form, provision by local communities of an adequate number of school nurses. It urges adoption of the county as the unit of administration, and taxation as the most promising means of filling those needs in rural schools. Of the 11,824 schools in the state, nearly nine-tenths are rural schools. The survey showed 8,600 one room schools and an attendance of less than ten pupils in something more than three thousand rural schools, which formed the basis of this study. More than half of the rural school buildings were over fifty years old and at least 13 per cent of the school plants were built more than seventy-five years ago.

The Equipment of a First Aid Room*

THE importance of having first-aid outfits for the preliminary treatment of injured persons in our manufacturing plants was early recognized, and as our industries expanded and accidents increased in number, the need for such outfits became more acute and more obvious, and in large plants it has been found to be desirable to set aside special and more or less elaborately equipped quarters for treating injured persons. First-aid rooms, in former days, were usually put in charge of employees who were supposed to be qualified to render first-aid service although untrained in medical science in its broader aspects; but it has now become common practice, in plants of sufficient size to justify the expense to employ a specially trained nurse for administering emergency treatments.

The first-aid departments of manufacturing plants have in fact developed quite extensively in various directions, and the treatment ranges all the way from the giving of first aid in the case of injuries, to the maintenance of small but high-grade hospitals.

The medical department in any plant should be such as to invite visits from the employees, and medical treatment should be available to them during all working hours. Courtesy, sympathy, kindness, and a manifest desire to render real service, should characterize the treatment in every case, whether the patient be a company officer or an unskilled workman. All are equally deserving of attention, time, and help, and when an employee from the lower strata finds that he receives the same treatment that is given to his foreman or superintendent, his loyalty to the company is greatly promoted.

"First aid" appears to be all the medical aid that is required to meet the needs of the small plant whose employees number from one to three hundred. To insure privacy both to the injured and to the person giving the emergency treatment it is highly important to set aside a special room for the purpose of administering first aid, and this room should be placed in charge of someone who has received instruction in first-aid work from a competent physician or trained nurse. The first-aid room should be light and airy, and should include among its furnishings two or more chairs, a

small table, and washing facilities consisting of hot and cold water, soap, and a supply of clean towels. In plants occupying more than one building or floor, a stretcher should also be provided.

The contents of the first-aid kit should be substantially as follows: Instruments—1 pair of scissors, thumb forceps, tourniquet, graduated medicine glass; drugs—2 ounces of aromatic spirits of ammonia, 2 ounces of 4 per cent boric acid solution, 2 ounces of alcoholic iodine solution, half strength, 2 three-ounce collapsible tubes of vaselin, containing 3 per cent of bicarbonate of soda (for burns), 2 ounces of castor oil (for eye injuries); dressings—1 dozen sterile gauze bandages (assorted sizes), 1 spool of adhesive plaster, 3 packages of absorbent cotton ($\frac{1}{2}$ ounce each), 3 packages of sterilized gauze (1 yard each), splints of assorted sizes, wooden applicators wound with cotton, wooden tongue depressors.

The first-aid room serves admirably as a place where an employee can seek rest and relief in case of illness as well as treatment in case of accident. In the larger plants one or more cots may also be provided, so that patients may lie down for a while, and the medical equipment of such rooms often includes many other simple remedies, in addition to those listed above. In plants in which the work is

unusually strenuous or hazardous, or in which women are extensively employed, it is desirable to maintain special rest rooms.

In plants employing more than three hundred persons it may be desirable to enlarge the facilities for rendering aid to the injured and to establish a dispensary. The dispensary occupies a position intermediate between a first-aid room and a hospital, because it receives cases of illness as well as of injury. It may be regarded as a first-aid department with enlarged activities, but as its functions are broader, and its management differs from that of a true first-aid room, it is desirable to call it by a different name.

A dispensary should always be in charge of a skilled nurse who is qualified to treat the sick as well as the injured, and to guard against the hazards of industrial poisoning. This nurse should devote his or her entire time to attendance at the dispensary during working hours. The dispensary should be housed in a special room or building set apart from the workrooms, and the equipment should be such as to allow the nurse in charge to work efficiently without being hampered by lack of proper supplies or facilities. Running hot and cold water should be available and a complete first-aid kit supplied. One or more stretchers should be kept ready for emergency use, and a few of the more



A well-equipped first-aid room

*Printed by courtesy of The Travelers Insurance Company from The Travelers Standard, December, 1922.

simple remedies for common ailments should be provided.

The dispensary idea can be enlarged upon as the needs of the plan require. In some instances an industrial physician is employed to devote part of his time to work in the dispensary, but whether a skilled nurse or a physician is employed will depend upon the nature and extent of the medical aid required.

When the medical needs of a plant are such that the services of a physician are necessary, an emergency hospital is usually established, and equipped with an operating table, couch and chairs, table for dressings, sterilizers for instruments and dressings, and a supply of dressings and splints and the more common drugs and medicines. When an emergency hospital is provided, a graduate nurse devotes all of his or her time to work at the plant during working hours, and in addition the plant management employs a physician who visits the plant to supervise the medical work at least twice each week. At other times during the working hours of the plant he should be available to call.

A fully organized hospital is needed only for the continuous care of the more serious injuries and illnesses, and in most industries such cases are few in number. Rapid growth and expansion are increasing the need for equipment of this sort, however, and the view of what constitutes a hospital case is continually enlarging, so that minor injuries are being included in this class more and more. The hospital is the only place where a physician can be sure that his directions will be carried out correctly, and continuous clinical observation for the first few days often prevents the development of serious consequences from small injuries and seemingly minor illness. If a good general hospital is within easy reach of the plant, a special industrial hospital may not be necessary, even in a large plant having thousands of employees. But if the work in the plant involves processes of an unusual nature, or if the exposure is largely of one particular kind, the plant hospital may be able to render much better service than a general hospital, because the physicians or surgeons who are in charge will have an excellent opportunity to specialize in the direction of the particular accidents and ailments that the plant produces. This is obviously true, for example, in connection with industrial poisoning due to the absorption of substances that are not used in other plants in the neighborhood; and it is manifest that many

other examples could be given.

It is not possible to give general advice with regard to the need for a special, fully-equipped plant hospital; but in any given case it should be easy to determine whether the installation of such an institution is advisable or not.

In a large plant it may be advisable to have several nurses on the medical staff in addition to an industrial physician. If a hospital is included, nurses will manifestly be needed; but they may be equally necessary even if the plant facilities do not extend beyond a dispensary, and a small plant often finds one trained nurse to be absolutely essential. Some plants employ visiting nurses, who go to the homes of sick and injured employees and assist, in various ways, in keeping the stricken household in running order. This service is a fine thing from a humanitarian standpoint, and if the employer desires to offer it he will certainly merit and doubtless receive the thanks of his employees.

In a plant employing a considerable number of men or women, it is distinctly advantageous to enlist the services of a good dentist, for prophylactic work, because the teeth are known to be responsible for a considerable number of diseases. Dental examinations may be specially important in industries handling chemicals of certain kinds. To examine the employees, a dentist need not spend more than one day a week in a plant employing 250 men, and the cost of such examinations should be borne by the employer. Where a dentist is employed for a greater time than this, and where he does more than make diagnoses and give simple treatments, a small charge is usually made to the employee for the work done.

Employees should be encouraged to consult the plant physician, or the nurse in charge of the dispensary, and they should be impressed with the fact that the medical department is there for their use and benefit. They should also be taught that the prompt treatment of a small ailment will often forestall and prevent more serious trouble.

In many of our larger plants employees are subjected to a reasonable physical examination for the purpose of determining their general physical condition, and to prevent the assignment of a man to an employment that would jeopardize his life and health. It is manifest, for example, that a man who has a hernia should not be set at work where he will have to do heavy lifting, where extra work will be thrown upon the heart, nor should

a man who is subject to epilepsy be allowed to engage in work where a sudden seizure would place him in imminent danger. Such men should be employed at tasks appropriate to their condition. The men have everything to gain from examinations of this kind, and we recall a recent case in which a large body of men were so thoroughly impressed with the wisdom of the plan that they requested their employers to give these same examinations, at reasonable intervals, to the men already employed. It is wise to provide the needful facilities for such examinations.

Safety on Walkway Surfaces

Fatalities due to falls constitute about one-fifth of the total number of deaths from all causes. The safety committee of the National Electric Light Association reports that among sixty-nine companies in twenty-two different states, accidents due to falls resulted in a greater amount of lost time than those due to any other cause.

The American Engineering Standards Committee therefore called February 14 a conference of forty trade associations, technical societies, and safety organizations for the purpose of determining whether it is desirable to have nationally uniform specifications relating to walkway surfaces, and, if so the several types of surfaces which should be applicable to (1) elevator floors, elevator landings, hall floors, ramps, runway floors, and stair treads; (2) apartment houses, factories, office buildings, hospitals, hotels, railway cars, railway stations, schools, theaters, and other places of public assembly.

The performance characteristics of materials would need to be determined as to frictional resistance and durability. Other qualities would require special study, as would the correlation of safety provisions now operating or in process of formulation. Accidents, never isolated and unrelated happenings, states the committee, may thus be made the subject of scientific study and be brought under definite control.

The centenary of Pasteur will be celebrated in Strasbourg by an international exposition from June 1 to October 15, 1923, which will cover all branches of hygiene, industry, housing, nutrition, and agriculture. The exposition is designed to show to the public the influence of Pasteur's work on different phases of human activity.

Incineration in Institutional and Industrial Buildings

Much technical work is extant on the subject of the collection and disposal of municipal refuse, but comparatively little can be found on the methods and apparatus used by the great public institutions, railroad terminals, markets, hospitals, private industrial establishments, and many other places where incineration is employed as a means of waste disposal. Yet, taken altogether, the number of these smaller installations is far greater than that of the municipal disposal plants, and in the aggregate the daily quantities dealt with will nearly equal the amounts handled by the civic plants. The usefulness of these minor installations is established beyond question. The uses of private incineration plants for the disposal of worthless matter produced in industrial enterprises is discussed by William F. Morse in a recent issue of *Municipal and County Engineering*.

For the disposal of the waste of market houses, he says, there is no method so satisfactory as incineration on the premises. Given a market containing from one hundred to 150 stalls, handling every variety of food products, there is a daily accumulation of material of from ten to fifteen cubic yards, weighing from three to five tons, according to seasonal conditions. If it is undertaken to haul this to a dump, the daily cost of transportation is a considerable added expense. It is economically disposed of by means of incineration and in strict accordance with sanitary principles, and without nuisance to persons or property.

The apparatus for incineration is not complex in design. It can be built from detailed working drawings by a competent bricklayer who can read plans and follow clearly printed instructions.

According to Mr. Morse:

The floor space for the incinerator must not be less than 8 ft. by 6 ft., with room on one side for stoking and for removal of ashes. . . . The usual location is on the basement of cellar floor, and the incinerator is connected with the main chimney of the heating plant, or with the boiler smoke flue. If the location is outside the building, a special steel stack or brick chimney, rising above the top of the market building, is provided.

The fire-box, floored with heavy cast-iron grates, is charged from the main floor of the building through a chute covered by a fire-clay slab enclosed in a cast-iron rotating frame. The interior walls, roof, and connecting flue are of the best quality of fire brick and the whole structure is

stayed by vertical and horizontal steel beams and angles. No iron is exposed to the flame except the face of the cast iron lining to the stoking door. The consuming heat may be raised to the highest temperature and maintained indefinitely without injury to the furnace.

The practical results of such construction is the destruction of all market waste without the use of fuel other than the material burned, the intermittent labor of one man only. The disposal of worthless matter is thus accomplished in a sanitary way, and at an extremely low cost.

The great Hudson terminal building is mentioned as utilizing an incinerator with a capacity of ten tons to receive the daily garbage, combustible refuse, floor sweepings from rooms and corridors cleaned by the vacuum process, and the refuse from the railway used by five thousand daily travelers. In this way the enormous volume of waste is disposed from the multitude of industrial plants housed in the Bush Terminal building at South Brooklyn, N. Y. The same method is in wide use in army posts and labor camps.

Physicians in Industry

AMONG the subjects discussed at the thirty-sixth meeting of the Conference Board of Physicians in Industry, held January 20, 1923, was that of industrial medical records and x-ray examinations. In the experience of the members, in many cases extending over a period of ten or twelve years, it had been found that records kept by the medical departments were of much value to the organization. An instance of the value of these records was cited in their use for reemployment of workers who had been dropped during the industrial depression. In many cases the records showed the defects of workers without the necessity of a second physical examination.

Another use of these records was shown in the checking up of the physical condition of those workers who had been absent on account of illness. In one instance a close study had been made of one hundred workers who had been sent away for the treatment of tuberculosis. Their attendance record after recovery and return to work was much better than that of a similar group of workers not so affected. This experience shows that the tuberculous workers had learned how to take care of their health while the supposedly well person paid little attention to this important matter.

Another instance was cited where the investigation of the records of a group of defective workers who had been taken on during the shortage of labor following the war showed that a large number of such workers had been retained during the industrial depression. Here again experience has shown that the defective worker when properly placed in a suitable position was a more reliable and steady worker than a normal person who has

less trouble in securing employment.

The value of dispensary records was shown in another instance where such records had proved a marked reduction in the number of eye injuries occurring in certain departments presenting eye hazards where the wearing of goggles was compulsory.

A report was submitted upon the x-ray examination of the chests of over three thousand employees in one factory. By refinements of technic, it had been possible to make these exposures at the rate of about one per minute. A specially devised caliper was shown for measuring the depth of the chest, thus enabling a more accurate exposure. The result of this study showed that 3.7 per cent of those examined had positive or suspicious symptoms of pulmonary tuberculosis, 3.2 per cent showed abnormalities of the heart or aortic arch and 0.8 per cent showed miscellaneous chest abnormalities; 7.7 per cent showed chest abnormality.

A Correction

On page 617 of the October, 1922, issue of THE NATION'S HEALTH appears an article on drug misconceptions as applied to surgery in which reference is made to certain deleterious effects which follow the use of miscellaneously compounded carbolated ointments. The use of the term "vaselin" in this article was inadvertent and had no reference either specific or implied, to "Vaseline," Carbolated Petrolatum Jelly, the product of the Chesebrough Manufacturing Company. Although "vaselin" is given in medical dictionaries and has been used in medical literature as a common noun, "Vaseline" is a trade name and was improperly applied by the author of the article to which reference is made in this correction.

Abnormal Air Pressures

MUCH has been heard in recent years of the great danger and high accident rate wherever men are engaged in tunnel construction under the abnormal air pressures necessary in driving through materials under hydraulic pressure. In most cases greater attention has been paid to the prevalence of caisson disease than to the usual class of accidents which occur in the building of tunnels under normal air pressure. Robert W. Jones, writing in *Compressed Air Magazine* discusses the subject and gives the results of recent observations that have a direct bearing upon the hygiene involved. On the part of engineers there seems to be a general feeling, states Mr. Jones, that if the construction is being carried on under the protection of a rock face conditions are safer than when the tunnel is being driven through soft material. This is seldom the case.

Comparison is drawn between accidents that actually occur under abnormal and normal air conditions. The following general figures are given from the accident book of a corporation recently engaged in tunnel construction under conditions remarkable for the high standard of work and the high air pressures. Every man who was injured, no matter how slightly, was expected to report to the doctor, and a complete record of all accidents was kept. The record as given covers a period of 170 days, from January to June, during which period the air pressure varied from twenty-one pounds to forty-seven pounds per square inch.

Nature of accident	Hospital Cases	Deaths
Powder fumes	1	..
Electric burns	2	..
Pinched by tools	2	..
Fights	3	..
Failure of tools	9	1
Nail punctures	13	..
Miscellaneous	14	3
Eye injuries	16	2
Falls	18	6
Falling rock	21	4
Falling tools	29	3
Transportation	35	2
Caisson disease	68	1

Mr. Jones' discussion of these accidents follows: The percentage of accidents resulting in hospital cases was 8.6 for caisson disease and 13.5 for all other injuries. This is considered typical of what occurs in tunnel construction under high pressures. The law and the codes relative to air work are as complete as it is possible to make them and are rigidly enforced. The results are shown in the low rate of caisson disease hospital cases. The company has shown in the last two years only one death caused by working under high pressure. . . . The cases under miscellaneous were almost entirely due to

changes in temperature, resulting in "colds" which are properly classed as accidents. The accidents listed are not excessive.

In ordinary tunneling operations under normal air, there would not be over three changes of shift in twenty-four hours, but in the case of work under higher pressure, when the accidents were listed, the length of shifts varied from eight hours per twenty-four to ninety minutes per twenty-four hours, with the ninety minute period divided into two shifts of forty-five minutes each, and with a five hour interval between shifts.

Standards Gain in Legislation for Injured Workers

Recent legislation in extending workmen's compensation laws has been made to cover occupational diseases, to reduce waiting periods before payment begins, to raise compensation allowed, to remove arbitrary limitations on medical care, and to provide at actual cost through state funds insurance protection against industrial accidents, according to the eighth annual edition of "Standards for Workmen's Compensation Laws," just issued by the American Association for Labor Legislation. Forty-two states have adopted compensation laws, and, while the health protection of the workmen is in many states inadequate, on the whole the report shows a broader treatment of the whole subject and better basic studies.

Disease, Not Accident, the Chief Cause of Disability

Some significant facts are brought out by the published analysis recently made of the total and permanent disability claims paid over the fourteen year period just past by the Pacific Mutual Insurance Company. The great increase in the number of claims under this clause is shown by the following tabulation:

PERMANENT TOTAL DISABILITY CLAIMS PAID.

Year	No.	Value
1908	2	\$ 2,533
1909	4	5,744
1910	4	5,292
1911	6	8,657
1912	5	8,787
1913	10	12,522
1914	7	10,265
1915	12	13,907
1916	9	10,185
1917	12	35,866
1918	6	19,551
1919	6	35,825
1920	45	102,580
1921	59	176,910
1922*	73	253,224

*1922 through October only.

On the part of public health workers great interest attaches to the analysis made of the causes of the

permanent and total disabilities on which annuities were awarded.

Of all causes the great white plague, tuberculosis, heads the list. Forty per cent of all the company's permanent total disability claims have as their cause tuberculosis. Insanity comes next, being the cause of about 25 per cent of the claims allowed; while paralysis comes third. One would very naturally assume that accident would be the chief cause of permanent total disability. In this company's experience, however, this is not the fact. Disease, far more frequently than accident, produces permanent total disability, says the report.

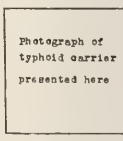
Tests of Dust Respirators

Dust respirators for protecting workmen from inhaling injurious dusts in mines or other dusty places are undergoing tests at the Pittsburgh, Pa., experiment station of the Bureau of Mines to determine their relative merits. Silica rock dust suspended in air and tobacco smoke are being used as test mediums. Various fabrics have been compared for their filtering qualities, the best so far having been cotton flannel and dense wool felt. Filter paper of close texture also tested high against very fine particles. A dust respirator of superior efficiency and comfortable to wear may be designed from results of this investigation.

Typhoid Carrier Circular

TYPHOID-CARRIER

THIS MAN IS NOT TO BE EMPLOYED AT ANY DAIRY OR OTHER FOOD HANDLING ESTABLISHMENT



Photograph of
typhoid carrier
presented here

Color: White Age: 19 Years Height: 5 feet 11 inches	(Normal) Weight: 175 lbs Build: Robust Eyes: Deep brown Hair: Black, gray streaked	Complexion: ruddy Moustache: brown Beard: no teeth Occupation: laborer High-receding forehead
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This man has been released from custody on the agreement that he will not work at a dairy or other food establishment. He has made a practice of getting employment at dairies where he caused the following cases and deaths from Typhoid Fever:

72 known cases and 3 deaths at an orphan asylum in Morris County from June to September, 1921

33 known cases and 3 deaths at Newark from September to December, 1922, spread by milk from dairy employing him

HEALTH DEPARTMENT.
Newark, N. J.

January 1, 1923

Circular distributed by the Newark, N. J., department of health to dairy and food handling establishments supplying the city with milk and other food. This carrier had already been responsible for two outbreaks of typhoid. He was released from custody upon his promise to refrain from handling food and to permit this description to be broadcasted by the health department.

New Federal Department

THE creation of a government department dealing with problems of education, health, and welfare, headed by a secretary in the president's cabinet will be asked soon by the joint committee on reorganization of the government appointed from both houses of Congress two years ago.

At the request of President Harding, a meeting of the executive committee of the Conference of State and Provincial Health Authorities was held in Washington, January 15 to 16, at which time Brigadier-General C. E. Sawyer explained to the executive committee the contemplated reorganization. The committee in charge of plans believes that an assistant secretary should have jurisdiction over the director generals of the four subdivisions to be called the Bureau of Veterans, Bureau of Health, Bureau of Social Service, and Bureau of Education. The Bureau of Health would assume the duties now carried on by the forty medical divisions of the government engaged in public health work.

General Sawyer said, in his address to the conference, "We are assured by all concerned in the reorganization plans of the government that they are agreeable to the carrying out of an idea which will promote the interests of medicine and make it possible to develop a public health system in the United States superior to any in the world."

Signers of the resolution favoring the creation of the new department were Gen. M. W. Ireland, Surgeon General of the Army; Gen. Hugh S. Cumming, Surgeon General of the United States Public Health Service; Admiral E. L. Stitt, Surgeon General of the Navy; Lieut. Com. J. T. Boone, Medical Corps, United States Navy; Dr. A. T. McCormack, state health officer of Kentucky; Dr. R. M. Olin, state commissioner of health of Michigan; Dr. James A. Hayne, state health officer of South Carolina; Dr. Ennion G. Williams, state health commissioner of Virginia; Dr. C. W. Garrison, state health officer of Arkansas; Dr. A. J. Chesley, secretary of the state board of health of Minnesota; Dr. W. A. Pearson, dean of the Hahnemann Medical College and Hospital of Philadelphia; Dr. A. W. Belting, president, Eastern Homeopathic Medical Association; Dr. Gilbert Fitzpatrick, chairman, American Institute of Homeopathy; Dr. William A. Woodward, representing the Amer-

ican Medical Association; Col. W. O. Owen of Washington, D. C., and Dr. Claude A. Burrett of Rochester, N. Y.

Signers requested that the name of the proposed department be the Department of Education, Health and Welfare instead of the Department of Public Welfare.

Pit-Head Baths in Colliery Areas

Bathing facilities for workers in coal mines, quite generally in the United States, compulsory in Germany, and in wide use in France and Belgium, have not been required in England. Instead of the ideal condition, therefore, which enables the miner to go to his work in ordinary clothes like other men, to change and store those clothes safely after putting on pit clothes and clogs, and after his work is done, to remove sweat and coal-dust and return home clean, is in decided contrast to the condition described by E. Colston Williams, before the recent meeting of the Society of Medical Officers of Health in London. The picture of the miner to whom bathing facilities are not available given by the *Lancet* as follows:

The miner may live some miles from his mine, to which he travels by train, having a long walk at each end of his railway journey. Arriving perhaps wet through, and it may be exposed to wind and rain while waiting for his cage, he works underground in draughty, damp conditions, aggravated by the sweat from his labor. The sudden transition of temperature when he goes again to the surface; the uncomfortable trip home, the bath at home, often taken in the kitchen in the presence of the women-folk; the pollution of the home atmosphere by the odor of coal dust on drying clothes; the labor of the women in preparing the bath and cleaning up; the incidental danger of the system through scalding accidents to the miners' children; not to mention the psychological effect on the miner of having to travel in public conveyances in blackened and dirty clothes are extremely disagreeable.

The compulsory provision of pit-head baths in colliery areas recommended by the Royal Commission on Mines in 1906-9 was objected to by the owners unless the use of the facilities by the workers was compulsory. The Miners' Federation of Great Britain advocated compulsion on the miner, but they were not backed by the men. In the Coal Mines Act of 1911, therefore, the position is taken that a majority of two-thirds of the workmen is to be obtained by ballot

before the owner is required to provide bathing and clothes-drying facilities at the mine, and that the workmen have to undertake to pay half the cost, the charge not to exceed 3 pence per head per week.

This provision is impracticable, because the maximum charge on the men would not meet half the cost; but by 1920 there were, according to Chappell, seven installations in Lancashire, Yorkshire, Scotland, and Wales. Dr. Williams gives the following description of the installation in Glamorgan:

These baths were provided by the generosity of certain shareholders in the Ocean Colliery Company at a cost of eight thousand pounds and were opened in 1916. They include an ambulance station and general office. There is a large central dressing room adjoining fifty-four bath cubicles in a separated corridor which affords privacy without doors. There are special baths for boys and officials.

The clothes are hung on endless chain suspenders running from the roof to the floor, fitted with hooks, and near the floor level are radiators for drying and airing. Each miner has his own numbered chain which he can padlock to prevent tampering with his clothes. Hot and cold water is laid on to a spray in each cubicle, controlled by the bather. Upstairs is a drying room for wet clothes.

Each man takes about seven minutes for his bath, and the seventy sprays serve 420 men an hour. In the ninety minutes which it takes to bring up a shift from the mine, 630 can be put through without waiting. The men provide their own soap and towels, and pay sixpence a week, which covers only part of the expense. There are 2,200 men employed at the mine and from 60 to 70 per cent use the baths. The management is by a joint committee of equal numbers of representatives of the men and the owners.

There is much apathy among the miners, for a proposition for further installation in the next valley was turned down by the men. The Miners' Federation approves the principle, but holds that the cost should be a charge on the industry to be borne by the owners—a change that would involve fresh legislation.

As a result of the findings of the Sankey Commission of 1920 there is a Miners' Welfare Fund to improve social well being, recreation, and general conditions of life among the miners, and to promote research and mining education. It is supported by a levy of a penny on each ton of coal raised. The fund is administered by a Miners' Welfare Committee consisting of five members appointed by the Board of Trade, including a medical member (Dr. E. L. Collis). The committee is assisted by three assessors appointed by the Ministry of Health, the Board of Education, and the Scottish Office. Applications on the fund have been made, up to date, as follows: For recreation grounds, parks,

etc., 108 aggregating 255,000 pounds; for workmen's institutes, 55, aggregating 139,000 pounds; other claims, 13, amounting to 9,500 pounds.

Dr. Williams suggests that the Fund can do much for improving ambulance service and first aid, for establishing massage centers for joint injuries and fractures. The supply of drinking water to underground workers is mentioned rather as a matter for the Factory Acts.

Lead Poisoning in the Pottery Industry

An increase in the number of cases of lead poisoning reported in the pottery industries of England is noted, though a particularly stringent code of regulation applies to potteries for its prevention. Thirteen fatal cases were reported in 1920, 11 in 1921, as compared with 6 in 1914. The average of reported cases was 76 for 1909 to 1911. There were 21 cases in 1919, and 24 in 1920.

The continued occurrence of fatal cases is of special interest, and the *Lancet* reports on the length of employment of these workers before death. Only one of the fatal cases commenced work after the present regulations came into force, and in this case some doubt existed whether the nephritis which caused death was of industrial origin. The average length of employment of nine victims in the industry was 34 years. A second case had been employed in another industry for eight years before death.

These cases show that for a chronic poison like lead many years must necessarily elapse before the benefit of improved conditions can find expression in mortality data. Since the paramount influence in causing lead poisoning has been definitely determined as the inhalation of lead dust, marked reduction is possible through hygienic measures of protection, but as long as lead is used in industries, danger must exist.

Hygiene of Laundry Work Studied in England

Too great overheating of the air has been found the greatest health hazard in the British laundry trade, according to investigation by Miss May Smith for the Industrial Fatigue Research Board, report of which appears in *The Lancet*. This overheating appears to be the laundries' most insistent problem.

The study also revealed the need for

seats during temporary lulls in work and the mistake of allowing girls who are on their feet all day to wear narrow-toed, high-heeled shoes instead of broad low heeled boots. Change of occupation to prevent long repetition of some wearisome movement, such as back bending, and to prevent monotonous fatigue was recommended. Unnecessary irritation by defective organization and machinery poorly adapted to the worker were also causes of fatigue which might be eliminated.

British laundries were found to be housed in a wide variety of buildings—from specially designed well-equipped factories to those housed in buildings little better than stables.

Study of workers at work showed that the time interval in performing given tasks was found to be longer during a ten hour than during a nine hour day, and lengthened with the afternoon. No evidence was found, however, that a reduction of hours increased total output. The psychological "dotting" test showed that work improved or deteriorated with such things as interesting or monotonous work, healthy vitality or presence of sick headaches. Errors were found to be from 10 to 20 per cent greater in the afternoon than in the morning, larger in later hours of afternoon than in earlier, smallest on Tuesdays and Wednesdays, and largest on Thursdays and Fridays.

Child Labor Highest in Cotton Mill Cities

According to figures recently given out by the National Child Labor Committee, the cities having the greatest percentage of child labor are also the cities having the highest percentage of cotton manufacture, and they are all located in Massachusetts and Rhode Island. The *New York Times* gives the following summary of the situation from a speech recently made by Atherton Brownell, member of the National Committee:

The city having the undesirable distinction of being the worst in the country with regard to the employment of children is Woonsocket, R. I., closely followed by Fall River, Mass. Then comes Pawtucket, R. I., New Bedford and Lawrence, Mass. All of these cities have more than 17 per cent in child labor. Compared with this the large cities which have no such manufactures range from 7.2 per cent in Chicago down to less than 3 per cent in Cleveland. Boston shows 6.4 per cent.

Mr. Brownell declared that he was able, through the courtesy of the United States Census Bureau, to

make public for the first time definite figures regarding the relations between cotton manufacturing and child labor.

I am now able to say on the authority of the census bureau that of the 2,133 children of New Bedford from 10 to 15 years of age, inclusive, 1,296 were employed in the cotton mills in 1920, he said. In Fall River out of a total of 2,660 children employed in all activities, 1,775 were at work in cotton mills.

Industrial Commission of Colorado Reports

The compensation department of the state of Colorado is responsible for all the details of administering the provisions of the workmen's compensation act, the industrial relations act, the state compensation insurance fund, and the Colorado minimum wage law. The sixth report just issued covers not only a summary of the work during the year from December 1, 1921 to December 1, 1922, but presents statistical tables which set forth in form comparable year by year the nature and amounts of claims and awards.

There have been 96,782 reports of accidents filed since the inception of the law up to and including November 30, 1922; 24,663 claims for compensation have been filed within the same period of time. This makes an average of 12,500 accidents per year, and approximately 3,400 claims per year. The number of accidents in 1922 indicates a decrease from 13,904 to 12,854; 4,201 claims were made for compensation in 1922 as against 4,025 such claims in 1921; 1,316 referee's awards were entered in 1921, as compared with 1,143 such awards in 1921; 167 petitions for review were filed in 1922, as against 138 for 1921. The coal industry was responsible for 46.45 per cent of the fatal claims; the metal industries for 12.25 per cent; and miscellaneous industries (all others) for 41.29 per cent. Of the non-fatal claims the coal industry was responsible for 24.39 per cent; the metal industries for 11.37 per cent; and all other industries for 64.24 per cent. The average number of weeks of disability recorded was 12.46.

The chief handicaps of the administration of the law in Colorado is reported to be the insufficient appropriation for its administration. Remedies for this were sought through the 1922 legislature by providing for simplification of compensation procedure and for flexibility of administration. These measures were defeated. The disputed points having been since set-

tled by supreme court decision, it is expected the situation will be clarified at an early date. The administration of the state insurance fund is reported as highly satisfactory.

While the report consists mainly of tabulations of the decisions of the industrial commission, interesting details of medical plans and benefit disbursements are given.

Work Conditions Affecting Linen Weavers

A study of efficiency in fine linen weaving constitutes the basis of a recent report by H. C. Weston of the Industrial Fatigue Research Board. Attention is particularly directed to atmospheric conditions with regard to temperature and humidity. In weaving, the loom rather than the weaver determines the pace, which is only limited by the tendency of threads to break, when the weaver has to tie up the broken ends. Less difficulty of this kind is encountered when the work is done in a warm, humid atmosphere. The activities of the weavers, naturally, are adversely affected by the conditions which are most favorable to the tenacity of the thread. The economic limit for linen weaving is reached at a wet bulb of 73 degrees F. Above and below this point productivity falls off.

Lighting and hours of work were likewise investigated. Artificial light, even though the illumination was good, reduced the output 11 per cent as compared with work under daylight conditions. The optimum hours of work were not determined. The report is one of a series which will take up various matters pertaining to hygiene of the textile industries.

Steel Corporation Saves 35,313 from Accidents

The United States Steel Corporation has spent more than one hundred and eight million dollars for safety, sanitation, welfare, and pensions during the last ten years, and considers it a good investment. The sum of something more than nine million dollars charged to accident prevention has, according to a statement just issued by Charles L. Close, manager of the bureau of safety, sanitation, and welfare, saved 35,313 men from death or serious injury since 1904.

A chart of the year by year trend of the accident rate per one thousand employees shows that, taking the plants of all the subsidiary companies as a whole, the rate for serious acci-

dents has decreased 56.13 per cent since 1906, when the bureau of safety, sanitation, and welfare was organized. Since 1912 the rate for all accidents has been decreased 71.41 per cent. The latter reduction in the accident rate, the report says, means that 193,232 men have been saved from injury since 1912.

During the early part of last year, a total of 136 plants, mines, and other properties with an average employment of 55,639 men, went through an entire month without a single disabling accident, and some of these plants were operated from two to six months without a single injury to a workman.

The bulletin quotes the following from Judge Gary's original instructions to the subsidiary companies regarding the safety of employees.

The United States Steel corporation expects its subsidiary companies to make every effort practicable to prevent injury to employees. Much can be done by designing new construction and machinery with all practicable safeguards. Expenditures necessary for such improvements will be authorized.

Women as Insurance Risks

Fewer women than men apply for insurance, states Dr. W. W. Beckett, medical director Pacific Mutual Life Insurance Company, and there is greater percentage of border-line cases and greater adverse selection against the insurance company. Examinations are usually more superficially made in the case of women than in men.

These facts are to be considered in conclusions drawn from a statistical study of the women written by the company in question, and published in the current issue of *Insurance News*.

In women under thirty-five the death rate is higher during the first five years the policy is in force than it is during subsequent years. The reverse is the case among men. Spinsters after the age of thirty are better risks than men. Married women, especially when the husbands are the beneficiaries, have a high mortality. Widows and divorced women have a high mortality before the age of thirty, but after that age the mortality seems to be but little increased above that of men.

The plan of insurance applied for seems to have considerable influence on the mortality. Those taking endowment insurance have a favorable mortality; those taking limited pay life have about 15 per cent greater; and those taking the whole life plan are very unfavorable risks.

If the husband is uninsurable the fact should be clearly stated, and the reason for his disability given. When a woman has children old enough to support her, a sufficient reason should be given for her desiring insurance.

Some companies do not issue insurance to women. Others do not restrict them except as to the amount. Some companies limit married women to endowment plans. Women, as a rule, are more easily disturbed about being declined than are men, and great care is exercised in the selection of women applicants for insurance.

The Ideal Work Curve in Industry

Studies directed toward the investigation of fatigue during the past few years have resulted in the construction of several typical work curves in industry. Curves have been evolved which make possible a comparison in the output in eight-hour plants as compared with plants requiring a ten-hour work day. Always a diminution in output indicates the onset of fatigue, the efficient worker in all cases being characterized by steadiness in contrast with the fluctuations, weekly and daily, of the inexperienced or inefficient worker. The quickest worker in all the studies was generally the steadiest. A variety of work on an operation rhythmic in nature produced a work curve which tended to rise throughout the day. When the hours of work were shorter and work throughout the week. It is through the precise observation of factors like these that normal curves are constructed as a basis for standards of performance.

A study of these work curves is made by Thomas Bedford in the *Journal of Industrial Hygiene* in favor of the proposition that there is probably an ideal work curve wherein under properly regulated conditions the worker concerned would start in the day at very nearly his maximum rate, and that, as time progressed, practice gradually increased his working capacity. The rise of the work curve would indicate the existence of a fine adjustment of the operative's working powers to his task, with a consequent elimination of undue fatigue. Bedford says: If human effort in industry is to be used to the best advantage, steadiness at work must be encouraged and useless spurring at the beginning of the day must cease.

Recent Compensation Decisions

BY DOROTHY KETCHAM, DIRECTOR, SOCIAL SERVICE, UNIVERSITY HOSPITAL, ANN ARBOR, MICH.

A RELIGIOUS corporation selling burial privileges in its cemetery and devoting its net proceeds to religious or charitable purposes, according to the New York Court of Appeals, November 21, 1922 was not conducting a business for "pecuniary gains." Hence it follows that in an action against it by an injured employee it would not be deprived of these defenses because it had not come under the compensation law.

The respondent in the case was employed as a laborer in the Cathedral's cemetery. While he was excavating the foundation for a monument he was injured by negligence of the appellant. The employment was admittedly a hazardous one, and yet the appellant had not protected its employee under the provisions of the workmen's compensation law. The respondent brought action to recover damages a verdict being found for the respondent after, in trial, the judge held as a matter of law that questions of assumed risk and contributory negligence were immaterial.

The question is raised as to the correctness of the ruling, the court basing its answer upon Section 3 and 5 defining the terms employment to include "employment only in a trade, business of occupation carried on by the employer for pecuniary gain, or in connection therewith." Only in case the workman is engaged in an employment so defined, does the Act apply as stated in Section 10. In the opinion of the court the appellant was not engaged in business for pecuniary gain. It owned a cemetery and sold burial privileges for which it received money. "But for the one fact that money is received by the employer for property sold or privileges granted is not sufficient to bring him within the definition of carrying on business for pecuniary gain. We may concede that the regular sale of burial rights in a large cemetery to an applicant who agrees to comply with conditions imposed is a business. That is not enough. The purpose of the business must be profit. 'Pecuniary gain' as used in the statute merely means that the employer must be carrying on a trade, business or occupation for gain."

In the situation at hand there were no salaries, no dividends, no division of profits directly or indirectly.

"Substantially all the sums received are used for the maintenance of the cemetery. If, inevitably there is any surplus, it is used for the charitable objects of the corporation. To say it is engaged in business for profit is an abuse of language We attempt to lay down no general principle that will serve the test under varying conditions. We hold that the statute applies to a corporation engaged in a trade, business, or occupation carried on for pecuniary gain, and that the appellant was not so engaged." The decision of the lower courts was reversed and a new trial granted.—*Dillon v. Trustees of St. Patrick's Cathedral in City of New York*, 237 N.E., 31.

UNDER the compensation act, the Supreme Judicial Court of Maine, December 22, 1922 decided the following situation. Orff and his employer agreed on compensation for a fracture of the rib of the right side. This agreement was approved and later the insurance company raised the question of ending the compensation since "the injury for which the employee was compensated had ended." The chairman of the industrial commission refused to terminate compensation.

The court points out that in such proceedings under the compensation law, when the commissioner finds the facts favorable to the petitioner, in the absence of fraud, the finding is final, however slender the evidence sustaining it is. This is not the rule where the finding is against the petitioner. "When the court holds that the findings of the commissioner must be set aside because unsupported by evidence, it is not deciding facts. It is asserting the fundamental legal proposition that a trier of facts, acting in a quasi judicial capacity must not render decisions without evidence. But it would be a usurpation for this court to say to the tribunal, having by statute the exclusive right to decide facts, that it must accept certain testimony as conclusive."

The situation was that Abel Orff was on May 8, 1921 afflicted with an internal cancerous growth which was at the time dormant, causing no pain. He was at the time working regularly and without trouble. Without the accident his disability might have been postponed for some time but following

the accident he suffered constant pain and was incapacitated for work. "It was in effect agreed that his incapacity was caused by the accident."

"True his injury was diagnosed as a broken rib. True the cancerous condition was discovered after the making of the agreement. This changed the supposed character, but did not negate the fact of causal connection." The court dismissed the appeal upholding the decision of the commissioner since "the accident aggravating a diseased condition caused a disability which is not shown to have terminated." The man was entitled to compensation of the disability due to the fact that the cancer was aggravated or accelerated by the accident.—*Orff's Case*, 119 Atl. 67.

THE claimant, Andy Wilson, while in the employ of the Sun Coal Company, received an injury which produced hernia. The company proposed necessary expenses of care and operation which claimant refused to do, and his failure to submit to the operation was set up as a defense to his right to recover.

"The evidence shows that a party so injured can never do efficient work, and that the injury will likely become greater as time passes; that as a result of the injury the earning capacity has been reduced one-third; that the only cure for hernia is a surgical operation—that the claimant is physically able to undergo the operation, and an operation was recommended by the several physicians who examined him."

"Under these facts, we are of the opinion that the employer was within its right in demanding that claimant submit to the operation. Under the disputed evidence, we are impressed with the idea that any reasonable man, under such circumstances, would have submitted to an operation."

This does not mean that operation will be upheld in all cases but where the undisputed evidence and facts point to the advisability of an operation, as here, the court upheld the general opinion and "therefore, that petitioner is not entitled to recover compensation so long as he declines to submit to operation." Claimant is entitled to recover compensation from the date of injury until the time he refused to be operated on.—*Sun Coal Company v. Wilson*, 245 S.W., 547.

INSTITUTIONAL HEALTH

The Health Problems of Schools and Colleges, Hotels, Summer Camps, Children's Homes and Homes for Dependents

Feeble-Mindedness—State Policy of Control*

Connecticut Proposes Solution in Vocational and Supervisory Methods

BY ARNOLD GESELL, M.D., PROFESSOR OF CHILD HYGIENE AND DIRECTOR OF THE PSYCHO-CLINIC, YALE UNIVERSITY, NEW HAVEN, CONN.

FEEBLE-MINDEDNESS is an enduring problem. Its magnitude as a state problem has sometimes been exaggerated; more often it has been underestimated. Whether recognized or neglected, feeble-mindedness, in its own persistent manner, continues to exert a powerful effect upon the welfare of the community. The feeble-minded are with us and, like the poor, they will be with us for some time to come. They are a burden and, in a sense, a menace; but it is preferable to think of feeble-mindedness as a great human problem which, like tuberculosis, can be attacked and ultimately conquered by methods of science and ingenuity. The total weight of feeble-mindedness appears to be staggering; but attack the problem in its individual units, (as in the fable of the sticks) and it loses its hopelessness. Indeed, feeble-mindedness is one of the most concrete and manageable of our great social problems. The feeble-minded can never combine to defeat us; but we can adapt our family and community life in such a way that all concerned shall be mutually safe.

Who Are the Feeble-Minded?

A feeble-minded person may be defined as a person for whom the community must contrive special adaptations, to make up for individual constitutional deficiency of intelligence, intelligence being the measure of his capacity of mental adaptation. The feeble-minded by birth or misfortune,

The feeble-minded present a complex but practicable problem. The ground-work for control has been laid by pre-vocational training in the public schools. Auxiliary centers for specific training, followed by placement and supervision can gradually be developed as part of the state system.

Extra-institutional activities mean a simple extension of the functions of the public school, the juvenile court, and the state training school, vocational colonies having a distinct place in a balanced scheme.

Private agencies and welfare organizations contribute in the essential case work, in securing suitably adapted employment, and in safeguarding the conditions of employment. All social agencies must unite in the effort to solve the human problem of the feeble-minded.

possess this capacity in such an inferior degree that they can not maintain themselves successfully without external support, guidance, and supervision. They have mentality, they have personality, but inadequately for the ordinary demands of civic life. The idiot is all but helpless. The imbecile can guard himself against common physical dangers, but otherwise needs constant protection. Fortunately, idiots and imbeciles are defi-

nately in the minority. They are outnumbered perhaps three or four times by the moron or high grade defective who more closely approximates the normal yet always needs some protection and oversight.

How Numerous Are They?

For children, under eighteen years of age, in Connecticut, figures can be offered with some confidence, for they are based on first hand studies; they are round and they are most conservative: (1) Mansfield Training School and Hospital, 200; (2) homes for dependent and neglected children, 200; (3) institutions for delinquents, 200; and (4) elementary schools, 2,500; making a total of well over three thousand juvenile mental defectives for the state.

For adults it is much more difficult to supply statistics. The number of adults enrolled at the Mansfield Training School and Hospital would give us only a bare indication of the total number. To make a complete census we would have to go to the state hospital at Middletown and determine those of its inmates who are primarily feeble-minded, the insanity being in the nature of an associated or induced complication. The proportion is considerable. We should have to go to the prisons, jails, almshouses, where again the primary defect is often mental deficiency, crime and dependency being complications or mere symptoms; and highly preventable. We would have to go to the highways and byways of city streets and country roads, among vagrants, prostitutes, wastrels, and ne'er-do-wells:

*Presented at the annual meeting of the Connecticut Society for Mental Hygiene, Hartford, January 12, 1923.

failures in life because of inherent mental defect. Who will number them all? We would have to go into rural hovels, suburban shanties, and city tenements, miserable, shiftless homes, presided over by feeble-minded mothers who have been permitted to bear, and even to rear children. We should also have to go to everyday places, to factories, shops, farms, and domestic circles, where some sympathetic employer or understanding parents, or interested relatives or friends have made it possible for the feeble-minded person to maintain a simple, secure and even useful place in life.

The significance of these feeble-minded "successes" in life should be emphasized because they clearly demonstrate the manageability of the defective, and the possibility of bringing the whole problem under social control. We must be cautious about generalizations concerning the feeble-minded. The moron makes a failure of life only when he is not given a suitable opportunity, within his limitations, to make good.

Incurable, Not Irreducible

Feeble-mindedness is incurable; and in this sense irreducible, but only in this sense. One of the major causes of feeble-mindedness is feeble-mindedness. All eugenic measures which will insure soundness of stock, will in the next generation increase normality at the expense of subnormality. Sterilization has an extremely limited scope of application. The Connecticut law on the marriage of the feeble-minded unfortunately does not enforce itself. More efficacious is a social policy which, by means of segregation and supervision, will so safeguard the lives of the feeble-minded girls and boys, men and women, that they can not bear children either in or out of wedlock, and will prevent them from assuming the responsibilities of a family.

There are numerous cases of feeble-mindedness in which the causative factor is a disease or a damage which curtails the development of the brain. All medical and public health measures which promote maternal hygiene, which improves obstetric and midwife practice, and which control infectious diseases, will, in the aggregate, materially reduce the number of feeble-minded. But it will be a long time before we stop all feeble-mindedness at its source. While we strive for prevention, our immediate duty is to reckon with the feeble-minded who are actually with us or who are growing up before our eyes.

We can not at a stroke wipe out

feeble-mindedness, but we can cope with it, and defeat its most harmful manifestations. We can manage it. It does not represent such an overpowering act of God that we are helpless before it. Feeble-mindedness is a peculiarly human problem which needs for its solution the rare but attainable wisdom of common sense, and straightforward cooperative community action.

For the nearly helpless cases of idiocy and low grade and middle grade cases of imbecility our duty is only too obvious. They need hospital shelter with the same urgency that a foundling or an invalid needs asylum. From the most elementary standpoint of decency we should so increase our institutional provisions that every custodial case of mental defect will be properly cared for. Many of them are not only deficient mentally but blind and deaf, or crippled too. The long waiting list of custodial cases, on file in the Governor's office, ought at least to be stricken out by the General Assembly.

The vast majority of the feeble-minded are not custodial in the hospital or asylum sense of the term. This is fortunate, for society could scarcely bear the economic burden of placing them all in institutions. And even if we could build the institutions, we should have some difficulties with the running expenses, upkeep, attendants, and staff. Nor would it be a really humane or common sense solution of the problem.

The moron or high grade defective is a very human sort of person, who, though not entitled to all the rights and privileges of community life; is entitled to as many as we can with safety extend to him.

Governor Templeton struck the right note when, in his inaugural address, he called attention to the vocational aspects of feeble-mindedness. For the high grade, borderline defectives the key to control is vocational, vocational training, vocational placement, vocational supervision. Not by concentration of large numbers in institutions but by more flexible, individualized devices of local community control can we solve both the humane and economic elements of the problem.

If we deliberately supply secure and steady employment to the mental defective he can ordinarily remain in a local community, without inflicting those harmful social consequences which grow out of neglect. How can a program of vocational control be achieved?

First of all we must discover who the feeble-minded are, and a policy

that is truly constructive and preventive will begin with the children. Chapter 355 of the Public Acts of 1921 provides that the State Board of Education shall make regulations requiring the enumeration and reporting of all children over four and under sixteen years of age "who, because of mental or physical handicap, are incapable of receiving proper benefit from ordinary instruction and who, for their own or the social welfare, need special educational provisions." This includes not only the deaf, blind, and crippled, but the feeble-minded as well. The school census and the state control over the school registers of all elementary schools and the principle of compulsory education are of basic importance in this connection.

The division of special education which is now being organized should make an invaluable contribution to the control of the problem of feeble-mindedness in Connecticut. Our vast public school system is virtually a clearing house where many social problems can be recognized and coped with while they are still in a potential or premonitory stage. Surely it is so with the feeble-minded. To try to make them normal by persistent academic instruction is folly. To give them a practical, pre-vocational type of training designed to make them in the end useful and happy is at least the part of wisdom.

We ought not to exclude the ordinary defective from our schools; we should welcome the opportunity to train him. Special classes for groups of defectives in our cities and special programs for the individual defectives in county and village, constitute the first step in a system of vocational control. Even the child in a remote district school can be reached by special methods of educational inspection and state aid. It would be a good investment and a sound social practice for the state to give special educational grants to encourage and support the training of the public school feeble-minded while they are in the plastic stage of their development. We must continually remind ourselves that the overwhelming majority of our juvenile feeble-minded are now actually attending our elementary schools.

County Home Schools

In very disproportionate numbers they are attending the schools attached to our county temporary homes. The educational interests of these wards are definitely under the supervision of the state board of education.

This raises some vital questions and possibilities concerning the future functions of our larger county homes.

The law that established these homes clearly stated that no child should be detained there longer than absolute necessity should require. Under the administration of the new bureau of child welfare there has been a marked and most commendable reduction in the number of commitments to county homes. A progressive effort will be made to place neglected and uncared for children in family homes; and in a very few years this should result in a marked decline in the enrollment of our county homes. If in addition we should rigorously exclude all the mentally defective and mentally subnormal, the enrollment would become very small indeed.

For a time the New Haven County Home conducted a special room, under a special teacher, for the special training of the defective pupils. If we followed out the implications of this demonstration we should in time frankly consider the desirability of setting aside at least one county home as a residential, vocational training center for juvenile feeble-minded. The county homes do not commend themselves to citizens of Connecticut as residential schools for normal children deprived of parental care; but the problem of the defective dependent is clearly a different one. Inasmuch as dependency, neglect, and feeble-mindedness are so frequently associated, we can not leave the county homes out of any complete program of vocational control which may be evolved. With the cooperation of the state board of education and the bureau of child welfare, one of our county homes could, without violence, be converted into a center for occupational training, for special vocational placement and social supervision.

That the higher grade of the feeble-minded can be trained for productive labor in industrial, agricultural, and domestic fields has been demonstrated beyond all dispute. It has also been demonstrated that after preliminary training a small group of some forty mental defectives can be placed in a rented house, presided over by a matron and her husband; and that with this dormitory serving as a home and recreation center, these defectives can go out and do housework, farm work, and shop work. There are over thirty of these extra-institutional vocational colonies in New York and they are being operated at a tremendous economic saving to the state.

How this and similar kinds of vocational control can be developed in

Connecticut is a question of complex but practicable detail. The ground work for such a policy of vocational control has been laid. The public schools must furnish the basic pre-vocational training through special programs, special teachers and special classes. Auxiliary vocational centers for specific training, specific placement and supervision must gradually be developed as part of a state system and not altogether independently of the public school and of the juvenile court. In all this extra-institutional activity the Mansfield State Training School has a rôle to play; and particularly in connection with parole and with the establishment of vocational colonies.

There is also abundant room for effort on the part of private agencies and welfare organizations. Careful social case work pays even with the feeble-minded. The finding of proper employment, the safeguarding of the conditions of employment for a feeble minded youth is a constructive form of social work. Private individuals, professional social workers, local committees, "Big Brothers," "Big Sisters" and our state society for mental hygiene have here a concrete field for cooperation accomplishment and civic inventiveness. We have not yet unlocked the local community resources which will solve the human problem of the feeble-minded.

Urge Cut in Criminal Birth Rate

"Eugenical Sterilization in the United States" is the title of a book by Dr. Harry Hamilton Laughlin, D.Sc., assistant director of the eugenics record office of Cold Spring Harbor, Long Island. The immediate stimulus to the preparation of this book has been the service of the author as eugenics associate of the psychopathic laboratory of the Chicago Municipal Court.

An introduction by Chief Justice Harry Olsen states that:

Sterilization, as a supplement to the eugenics marriage laws and to the segregation of criminals has already been in force for a number of years in fifteen states. Individuals unfit to have offspring often volunteer to be deprived of their reproductive powers, and in other cases are sterilized, by a simple and harmless operation by a judgment of court.

The subject of sterilization comes to the front with special force now in view of a model sterilization law which has been drafted and will be offered generally to the legislatures of the forty-eight states. The new law is a vast improvement upon the hasty

and experimental legislation which has preceded it.

The psychopathic laboratory of our court has had unequalled opportunity for studying criminals individually and collectively, for in the past eight years many thousands have been examined psychologically, physiologically and anthropologically. When the laboratory was opened the most advanced thought in respect to criminality was that low intelligence was a chief factor.

It has been proved by thousands of cases that the dangerous criminal is dangerous, not so much because of low-grade intelligence, as because of low-grade emotions and low-grade morals. There is nothing in him to tell him that he will suffer if he makes others suffer. He is potentially dangerous under all circumstances and if his intelligence is too low to permit him to make a living in the ordinary ways he naturally resorts to crime. Such individuals must be segregated, not merely interned for a short term in prison, and some of them may have to be sterilized in order to make sure that their numbers are not increasing from generation to generation.

Scoring the House and the Community

The score card principle, now used for many purposes in health work, is applicable to comparisons of many kinds. The Morgantown, W. Va., Chamber of Commerce has issued a Community Score Card which in a slightly different form has been used in about one hundred and twenty communities of the state.

The card provides for a possible one hundred points on each of the following: the municipality; trade center; prosperity; social; health; education; recreation; fine arts; religion; and community spirit. The sub-divisions together with the possible number of points allowed in scoring the health of the community are: physicians and dentists —15; hospitals and trained nurses —15; public health service —30; sanitation —30; and public interest —40.

In a "Questionnaire and Score Card Applicable in Choosing a Country Property," by William Paul Gerhard, fifteen factors having a total possible score of one hundred points are listed as those demanding careful attention before the purchase of such property.

Some of the factors having a more or less direct relation to health are given the following possible scores: physical conditions and climate —5; water supply —10; sewerage, sewage disposal, and removal of refuse —10; milk supply —5; medical and nursing service —5; and outdoor and indoor recreations —5; making a total of forty points out of the hundred that would be scored by a perfect property.

Deafness in School-Children

The subject of deafness in school children is usually accorded less attention than it deserves, particularly in view of the fact that formal education to be effective must begin much earlier with deaf children than with the normal child. Some interesting observations on the subject have been recently recorded by the *Lancet*.

It may not be wise to leave the detection of deafness in school children to their teachers, however conscientious. This is the lesson taught by Dr. F. Leegaard, who was appointed in 1919 by the school authorities in Christiania to examine the ears of children attending the public elementary schools. Among 4,721 children in third school year he found 459, or 9.7 per cent suffering from some degree of deafness, which in 119 cases was bilateral. In more than half the number of unilateral and bilateral cases the teachers proved to have been unaware of this disability, and the children therefore ran the grave risk of being transferred to special institutions for the mentally deficient, whereas their imperfect hearing qualified them for the special educational facilities provided for the deaf.

It was found that chronic suppurative otitis was present in 1.4 per cent of the 9,442 ears examined, and in 2.5 per cent of the 4,721 children. Chronic otitis was found in 22.1 per cent of the 578 deaf ears and in 25.3 per cent of the 459 deaf children, and in most of these cases of chronic otitis hearing was more than a little reduced. In 1.7 per cent of the 9,442 ears dry perforation of the tympanum was found, and was associated with some degree of deafness in 1 per cent. Among the 578 deaf ears the incidence of defects of the tympanum was as high as 17 per cent. In most of these cases, however, the deafness was only slight or moderate. Scars of the tympanum were found in 1.7 per cent of the 9,442 ears, and in 0.31 per cent they were associated with some degree of deafness. These defects were found in 5 per cent of the 578 more or less deaf ears. Tubal catarrh was demonstrable in 24.7 per cent of the 578 deaf ears, and the cause of the deafness was traced to acute otitis in 2.4 per cent and to cerumen in 7.9 per cent. In as great a proportion as 2.8 per cent of all the deaf ears no disease of the tympanum could be found, and no definite diagnosis could be made. One of the by-products of Dr. Leegaard's systematic examinations was the discovery that, between

the ages 9 and 10, the incidence of adenoids and enlarged tonsils was remarkably high and was often unassociated with deafness or any other departure from ordinary health. It is evident that Dr. Leegaard's work has fully justified the course taken by the Christiania school authorities in appointing a specialist in disease of the ears to the school medical service.

Dietetic Courses for Pupil Nurses

Standards of dietetic instruction for pupil nurses in Class "A" hospitals have been ascertained by a questionnaire sent to 422 hospitals in the United States and Canada, 48 per cent of which replied. The study was undertaken by Miss Helen Clark for her thesis for the degree of Master of Science, Ohio State University.

Inductions which may be made from Miss Clark's study include the following: (1) hospitals do not have a minimum standard of educational requirements for dietitians; comparatively few instructors have had courses as student dietitians; (2) so far as the answers to the questions indicate the duties of the instructors are nearly uniform in each hospital; (3) methods of instruction are very similar in all hospitals; (4) there are no definite years when classroom or lab-

oratory work are given and these classes are often not concurrent; classroom work usually precedes that given in the diet kitchen; (5) most of the schools use a textbook for class instruction in dietetics; fewer use a laboratory manual; an outline for the diet kitchen work is generally used; (6) opportunity for giving work in the laboratory in preparing special diets, infant formulas, preparing diet lists, making menus and purchasing food supplies is not used to the extent which is easily possible by the laboratory classes; (7) practically one-third of the instructors feel that the average nurse dislikes dietetics.

Wichita, Kas., has 47 basketball teams, 6 bowling teams, 31 men and 15 women baseball teams, 7 tennis teams and 6 track teams, reports *Physical Training*. Twenty-four churches were represented in from one to 10 different sports. A total of 3,514 men and women participants and 9,700 spectators at contests is recorded. Volunteer workers numbered 287 and 30 gymnasiums and play fields were available for the contests. This widespread physical education program in a city of 75,000 was started five years ago when Mr. Ireland, physical director, Y. M. C. A., organized an 8-team Sunday school basketball league.

A Three Weeks Health Demonstration



Interest attaches to the New York City experiment in a scientific feeding régime of thirty-six children undertaken as an object lesson to the parents of the two hundred thousand children whose state of malnutrition constitutes a health menace, present and potential. Food a plenty of the right kind is combined with suitable activities and open air conditions to give these handicapped children a new start in life.

Standardization of Student Health Service

Physical Director, Hygiene Teacher,
Sanitarian and Doctor Must Cooperate

By J. E. RAYCROFT, M.D., CHAIRMAN COMMITTEE ON STANDARDIZATION AND EVALUATION OF STUDENT HEALTH SERVICE ACTIVITY, AMERICAN STUDENT HEALTH ASSOCIATION, PRINCETON, N. J.

STANDARDIZATION and evaluation of student health service activities may be profitably discussed for three principal reasons: First, to assist college authorities to visualize the many factors that affect student health and to bring to their attention their responsibility to make adequate provisions for keeping students in good, permanent, healthy condition.

It also devolves on the college authorities to administer their affairs as regards their students in such a way that wastage of endowment funds will be as little as possible, the wastage due to the inefficiency of the students who are under their charge.

The second point is to outline the general principles that must be observed in any attempt to set up an efficient organization to deal with this important phase of the college responsibility; and third, to define in general terms, the relationship between the physician who is in charge of the health service and the physical director.

An analysis of the typical student community will show that there are, generally speaking, two sets of factors affecting student health, environmental and personal. The first includes (1) General sanitation of buildings and surroundings as regards sewage disposal, mosquito breeding, noxious gases, inefficient janitor service, etc. (2) Conditions in dormitories, class rooms, and laboratories as regards light, both natural and artificial, heat, ventilation, bathing, lavatory and toilet facilities. (3) Food and water supply in Commons and boarding houses; protection against infected milk and disease carriers. (4) Provision for treatment in dispensary and infirmary. (5) Provision for healthful exercise and recreation.

In the second group will appear (1) the student's physical status; his present condition and tendencies in the light of his past experience as shown by physical and medical examinations. (2) his knowledge of the principles of personal hygiene and his practice of health habits; (3) his habits of exercise and recreation. (4) supervision of his participation in

competitive games and other extracurricular activities; (5) requirement of protective vaccinations, inoculations, etc.

These factors are susceptible of rearrangement in various groups such as educational, sanitary, medical or physical training, but, inasmuch as the fundamental problem is promotion of student health and efficiency, and the basic factors are much the same in all places, the essential point is to suggest an effective plan of organization and administration. Most of the institutions throughout the country have some or all of the necessary individuals or facilities, so that a decision to establish a "student health service" might be put into effect in three steps: by organizing a student health board, on which hygiene, sanitation, medicine, and physical training shall be represented; by analyzing the contribution which each of these individuals or groups can make to establish and carry on the service; and by organizing a cooperative working plan among these different groups and individuals.

The decisions made as a basis for these various steps must be divorced as completely as possible from departmental organization, as such. In other words, effort must be made to find the individual or department best qualified to perform a given function.

It will be necessary and helpful to formulate in clear terms the particular objective of each phase of the work. For example: (1) What grounds should be covered in a course in personal hygiene and where should emphasis be laid? (2) What list of observations in a physical examination is capable of supplying information most useful both to physical director and doctor in charge of the hospital.

If these and other objectives are clearly formulated and there exists an appreciation of the need and importance of a well organized student health service to which physical director, doctor, laboratory man, teacher of hygiene, and sanitary inspector all contribute, I believe that there will be a minimum of friction and misunderstanding.

Another point to be noted is that

physical education is a constructive set of activities for the normal individual while the health service primarily has a curative and medical purpose.

FORM OF HOSPITAL REPORT PRINCETON UNIVERSITY

	1914-15	1920-21
Total number undergraduates.....	1,643	1,967
Infirmary open, days.....	267	264
A. Dispensary:—		
1. Patients treated:		
a. Seniors	259	277
b. Juniors	232	374
c. Sophomores	293	376
d. Freshmen	301	378
e. Post Graduates and Faculty	108	63
f. Seminary	69	48
g. Employees .....	..	17
h. Outsiders	13	61
Totals	1,275	1,594
2. Number of treatments.....	6,895	11,994
3. Average number treated daily in Dispensary.....	25.8	45.09
4. Average number of treatments per patient.....	5.4	7.3
5. Largest number treated in one day	68	94
6. Percentage of undergraduates treated	75.9	77.4
7. List and number of diseases treated (To be reported later)		
B. House Patients:—		
1. Number of patients.....	552	570
2. Number of students sick in bed more than once during year:		
2 times	64	67
3 times	14	16
4 times	4	2
5 times	1	0
Totals	83	85
3. Number of contagious cases isolated (included above)		
a. List and number of infections:		
Mumps	33	23
Diphtheria	1	0
Scarlet fever	4	2
Measles	1	4
German measles	1	0
Chicken pox	3	4
Typhoid	4	0
"Pink eye"	0	77
Totals	47	110
b. Largest number of students isolated at one time	14	11
c. Largest number of different infections isolated at one time	3	8
d. Number of cross infections	1	0
4. Number of operations and general anesthesia:		
Major	7	3
Minor	0	14
5. Special Nursing:		
(1) Number of Days:		
(a) Staff nurses	615	293
(b) Outside nurses	172	369
Totals	787	662
6. Results of treatment:		
a. Patients recovered	534	531
b. Patients transferred to home or another hospital	17	18
c. Patients died	1	1
7. Total number of patient days	2,922	2,934
8. Average number of students per day sick in house	10.9	11.1
9. Average number of days each patient sick in house	5.3	5.14
10. Largest number of patients in house in one day.....	26	29

11. Percentage of students sick in hospital each day, of 16	66%	56%
12. Total loss in time from sickness in bed, in terms of college years of 240 days each	12.2	12.2

It is to be noted that number of students sick in bed throughout the year was only slightly larger last year than in 1914-15, in spite of the fact that there was a 20 per cent increase in the number of students attending college, and the further fact that we have followed the plan of putting students to bed for twenty-four or forty-eight hours as a preventive measure in certain cases.

We think that the increased use of the dispensary is in large measure responsible for this reduction in the amount of sickness in bed, because it affords an opportunity to abort many simple infections and to make an early diagnosis of more serious cases.

Drastic Rules for the Control of Venereal Diseases

Members of the state health advisory commission of Illinois declare that the new set of rules for the control and suppression of venereal diseases, promulgated by Dr. Isaac D. Rawlings, state director of public health, are more drastic and advanced than similar regulation in any other state in the union. The commission has approved the rules which, under the authority granted the state director of health by the legislature, have the force of law and are backed up by a penalty clause which subjects violators to a fine of two hundred dollars, a jail sentence of six months or both.

The *Chicago Tribune* summarizes the three regulations which make the most drastic changes in the old venereal disease rules as follows:

All persons who have exposed themselves to venereal disease but who are not found to be infected, may be held by local health authorities as "suspected contacts" for the period of incubation of the suspected disease—ten days in the case of gonorrhea and thirty days when syphilis is suspected.

Refusal of a suspected person to submit to examination by health authorities "shall be *prima facie* proof that such person is infected and shall authorize and justify quarantine and isolation of any such person and the placarding of the premises," another rule states.

No physician or other person shall issue certificates of freedom from venereal disease to any person known to be or suspected of practicing prostitution, under another rule.

Under pain of revocation of their licenses to practice medicine, this third rule will put an end to the lucrative practice of some physicians of examining inmates of disorderly

houses "at so much a head" and issuing health certificates to them.

Rule 7, which gives authority to health officers to deal with "suspected contacts" is as follows:

"Any person known to be a common prostitute . . . or any man consorting with a common prostitute or inmate of a house of ill fame caught in association with a common prostitute or inmate of a house of ill fame shall be deemed to be a suspected case of venereal disease or an infective carrier."

Names, addresses, sex, age, color, marital condition, occupation, and the name and address of the infected person's employer, must be given under the new rules.

Druggists who sell preparations for the cure of venereal diseases are required, under Rule 8, to report by name and address purchasers of such preparations unless the purchase is accompanied by a physician's prescription.

Under Rule 17 local health authorities may define the limits of the area in which diseased persons are to be isolated. This rule also specifies that such persons may not handle food-stuffs, work in a barber shop, or practice medicine, dentistry or nursing.

Full authority is given for the placarding of both suspected and known cases of venereal disease and blanket power to placard "premises used for

immoral purposes when such premises are known to harbor or are suspected of harboring a person afflicted with venereal disease" is also given health officials.

Gymnastics for Infants

Gymnastic exercises for infants have been worked out and found to be beneficial by Detlav Neumann, former army officer and athletic director in Berlin, reports the *Journal* of the American Medical Association.

A well padded table large enough to allow the child to tumble about on but small enough so that the assistant can control the child's movements with his hands is used. The system has been tried on both healthy and sick infants with the aid of Professors Bier and Langstein. Incipient cases of rickets have been benefited and weak musculature of children who have learned to walk late has been strengthened. The benefits of gymnastic work for infants are not confined to corrective measures, but are most pronounced in the balanced development that ensues from consistent training in efforts toward muscular coordination.

Woodmen Memorial Sanatorium

WOODMEN of the World is building a sanatorium for tuberculous members of its order in San Antonio, Texas, announces W. A. Fraser, Omaha, Neb., sovereign commander. One hundred thousand dollars was appropriated by the national organization and Texas members donated a similar amount.

The Bexar county farm, bought by the organization as the prospective site, is located on a high hill overlooking San Antonio. The first unit of the sanatorium will be a building 300 feet long and three stories high with an elevator going up through the center of the building sufficiently large to accommodate wheel chairs, wheel cots, and stretchers.

The building will be of concrete and brick with 300 feet of reinforced concrete porches on each floor making a total of 900 feet of porch room which will accommodate 125 patients. An administration building will be erected at a later date together with a residence for the chief medical director and sleeping quarters for help.

Water supply will be from deep wells. Two dairy barns are already on the property; chickens will be raised in large numbers; and fresh meats secured from the city daily. The ground is well adapted to farming and

truck gardening; the fresh vegetables necessary can be raised throughout the entire year.

The hospital is being built as a war memorial to members. On a monument to be erected in front of the main building will be engraved or cast on bronze plates names of all those in the order who lost their lives in war.

Mr. Fraser, then sovereign adviser, began the movement in 1907 for a tuberculosis sanatorium for members when \$8,000 was subscribed for relief purposes. In 1909 the order made arrangements whereby members could secure treatment from the Texas Sanatorium, Carlsbad, Tex. The campaign for the national sanatorium began in 1919 when the convention appropriated \$100,000 to be used whenever the first state whose climatic conditions were favorable for treatment of the tuberculous contributed a like amount.

As soon as the sanatorium is established, Woodmen of the World will begin a campaign for a sanatorium in the east for aged members. Proposal is that each state in the union furnish certain rooms to be named for the state and set aside for members from that state. Erection of an orphan's home is also being contemplated.

Diphtheria Control in Custodial Institutions

Disease Controlled by Toxin-Antitoxin Treatment Given to 5,000 State Wards

By DON M. GRISWOLD, M.D., M.P.H., STATE EPIDEMIOLOGIST, DEPARTMENT OF HYGIENE, UNIVERSITY OF IOWA, IOWA CITY, IOWA.

THE Board of Control of State Institutions in Iowa has supervision of all institutions of the state except those used for educational purposes. The institutions under the supervision of this Board are hospitals for mental disease, reformatories, industrial schools, institutions for feeble minded, orphans' home, soldiers' home, colony for epileptics and penitentiaries. The nature of some of these institutions requires the housing of large numbers of individuals under close supervision. Because of the differences in age and other factors, the incidence of the contagious diseases varies greatly.

With regard to diphtheria, one institution reports that they "have had no diphtheria for twenty years." From another institution the superintendent reports that "diphtheria quarantines have existed almost the year round." Because many of these institutions are not hospitals but institutions built and organized for the custodial care of infants and adults, the establishment of quarantines causes considerable additional expense and disruption of institutional routine.

More Modern Methods

It was with some of these things in mind that the State Board of Control of State Institutions inquired of the state epidemiologist if the application of the principles of modern preventive medicine would help to reduce this preventable illness and expense.

In the autumn of 1921 a visit was made to two institutions where diphtheria was prevalent. At this time the usual measures were instituted to prevent the spread of the disease to those not already attacked. These methods included the culturing of the throats of all the children in the institution, the segregation of carriers, quarantine of cases and possible cases, and in general the breaking of contact between the sick and the well.

At the same time all the children except those who had recently received antitoxin were given the Schick test. It was felt that this was an important step because as soon as the test was completed the children could be definitely grouped, as susceptible

or immune to diphtheria. This information made it possible to concentrate attention upon the susceptibles.

The fact that a child who is immune to diphtheria may be a carrier of the diphtheria bacillus was brought very forcefully to our attention in this outbreak. Children whom we knew to be carriers for a longer period than the incubation period of diphtheria were in every instance found to be immune. This finding is in accord with our previous observation on this matter.

The Schick test was not given to any child who had received diphtheria antitoxin in the three months previous to the work. The passive immunity granted by such administration would interfere with the accuracy of the test for at least that long. By the time the Schick tests had been given and satisfactorily read and recorded, a week had elapsed. During this week the measures toward preventing the further spread of the epidemic had proved effective and there were few new cases occurring.

The desirability of giving each susceptible child the advantage of toxin-antitoxin immunization was laid before the superintendent. Care was used not to hold out hope of any immunity from this procedure for at least three months. By carrying out vigorously the well established principles and procedures of epidemiology, the acute outbreak of diphtheria was stopped.

The interest of the permanent staff of the institution in diphtheria prevention work that was stimulated at this time continued to be operative for a sufficient time to permit the toxin-antitoxin administration to have successfully protected those found susceptible.

During the twelve months following this work there were no cases of diphtheria at these institutions except among those who had not received attention with the Schick test and toxin-antitoxin and among the new arrivals.

The Board in Control of State Institutions of Iowa was sufficiently impressed with the work in the two institutions in the fall of 1921 that an invitation was extended to apply the

same principles to eight other institutions under its jurisdiction during the summer of 1922. At that time we examined, as described, over 5,000 persons in the various state institutions, ages ranging from one month to 93 years. The age distribution was not that found in a general population.

The recommendations which were left with the superintendents at the close of this study contained among other things the following:

On admission, every child should be quartered in an observation ward for two weeks. Besides giving opportunity to study the child's mental and moral equipment, it gives sufficient time for making a complete physical examination and the incubation of any communicable disease the child may be bringing. Physical examination should include a culture of the nose and throat and all abnormal discharges. It should include vaginal smears of all girls under twelve years of age. During this two-week period the child should be immunized against smallpox and typhoid fever. The child should be given a Schick test and if found susceptible to diphtheria, should be given toxin-antitoxin.

Observation Periods

By admitting children into the institution only after a two weeks study similar to the one outlined, contagious disease can and should be kept at a minimum. Chickenpox, measles, and mumps are the only common diseases of childhood whose incubation period exceeds two weeks. It is only the occasional case of these diseases that has an incubation period longer than two weeks. Where experience showed it advisable, a three week period might be used. After such examination and care the population of the institution would be made up of persons naturally immune to diphtheria and those who had been made immune by toxin-antitoxin administration.

The study showed that the percentage of positive Schick tests ranged from 23 per cent to 54 per cent in the various institutions. The significance of this, is, of course, that regardless of age and other factors one-fourth to one-half of these wards of the state are susceptible to diphtheria.

Nearly one thousand complete treat-

RESULT OF SCHICK TEST AND TOXIN-ANTITOXIN WORK IN IOWA STATE INSTITUTIONS DURING THE SUMMER 1922.

Name of Institution	Type of Patient	Range in age	Number receiving Schick	Number Positive	Per cent Positive	Number given toxin-ant.	Reaction
Soldiers' Orphans' Home, Davenport, Ia.	Normal	9 mos. to 16 yrs.	360	90	24%	90	Severe, 15 local and constitutional.
Juvenile Home, Toledo, Ia.	Normal	1 yr. to 12 yrs.	129	27	24%		
Independence State Hospital, Independence, Ia.	Insane	years 14-93	1197	341	30%	341	Few mild local and constitutional.
Mt. Pleasant Insane State Hospital, Mt. Pleasant, Iowa.	Insane	14-93 years	1000	231	23%	231	7 severe and constitutional, 5 moderate local and constitutional, 14 severe local.
Training School for Girls, Mitchellville, Iowa.	Unstable	12-18 yrs.	204	110	55%		
State Hospital and Colony for Epileptics, Woodward, Iowa.	Epileptic	4-50 yrs.	429	244	54%	244	8 severe and local constitutional.
Institution for Feeble-Minded, Glenwood, Iowa.	Feeble-minded	1 mo.-65 yrs.	1523	454	32%		
Training School for Boys, Eldora, Ia.	Unstable	12-18 yrs.	331	90	27%	90	45 very mild constitutional.

ments of toxin-antitoxin were given. Only 30 individuals in this number reported "severe local and general reaction." This usually constituted symptoms sufficient to warrant the patient staying in bed the day following any one of the three injections of toxin-antitoxin; 5 reported "moderately severe local and constitutional reac-

tions"; 14 reported "severe local reaction," and a few more than 45 reported "very mild local and constitutional reactions."

The expense of the work and the suffering of the patients was infinitesimal compared with the expense and suffering involved in a few cases of diphtheria.

Institutional Problems of Building and Equipment

A series of articles appearing in the March issue of *THE MODERN HOSPITAL* constitutes a symposium on the subject of the physical plant of the hospital. Whatever the conception of the work by the personnel of an institution, however emergent the need, the delivery of medical service hinges largely upon the machinery through which it can operate. For this reason a comprehensive treatment of the subject is opportune and the solutions suggested by experts in their several fields will find an even broader field of usefulness in related institutions than in the hospital proper.

Titles are as follows:

The Building Outlook in 1923, by

Edwin J. Brunner, editor, *The American Contractor*, Chicago.

The Modern Hospital in the City Plan by Philip W. Foster, associate of John Nolen, one of America's outstanding city planners.

Relative Cost of Hospital Construction and Equipment by Dr. S. S. Goldwater, hospital consultant and director of Mount Sinai Hospital, New York.

Converting an Old House into a Hospital by Carl A. Erikson, of the well-known hospital architectural firm of Schmidt, Garden & Martin, Chicago.

The Interior Decoration of the Hospital by G. B. Heckel, editor and publisher, *Drugs, Oils and Paints*, Philadelphia.

General Principles of Planning Dis-

pensaries by Michael M. Davis, Jr., Ph.D., executive secretary, Committee on Dispensary Development, New York.

The Hospital Morgue and Autopsy Room by Richard Resler, of the firm of Resler & Hesselbach, architectural and consulting engineers, New York.

The Planning of Nurses' Homes for Small Tuberculosis Sanatoriums by Sund and Dunham, architects, Minneapolis, Minn., specialists in the planning of tuberculosis sanatoriums.

The Laboratory Quarters and Equipment of The Modern Hospital by Max Kahn, M.D., Ph.D., director Department of Laboratories, Beth Israel Hospital, New York.

Heating and Ventilating Considered in Connection with Hospital by Helen R. Innis, of the Donnelly System Company, New York, N. Y.

Do You Know These Facts?

The following queries from the *Mental Hygiene Bulletin*, January, 1923, give food for thought.

DO YOU KNOW THAT

There are 250,000 patients in hospitals for mental diseases in this country.

Each year 50,000 persons are admitted to these hospitals for the first time.

There are many cases of serious mental maladjustment that never reach these hospitals.

Patients with one type of mental disease alone (dementia praecox) are twice as numerous as persons in all hospitals for tuberculosis.

One man out of every six received into a state hospital for mental diseases for the first time is admitted on account of syphilis.

Over one-eighth of the total expenditure of some states is for the insane.

The expenditures for the insane in some states exceed the amount for any other purpose except education.

The cost of maintenance of persons in hospitals for mental diseases throughout this country is about \$75,000,000 annually.

The economic loss to the United States each year on account of mental diseases is over \$200,000,000.

The number of hospital beds occupied by patients with mental diseases exceeds the number in use in all general hospitals in this country.

Whereas most hospitals for mental diseases are overcrowded, the average daily number of patients in general hospitals is about one-half of the number of available beds.

From August, 1914 to June, 1919 there were 40,000 deaths from pulmonary tuberculosis (30,000 deaths throughout the Provinces of France and 10,000 in the army). In addition, 110,000 men were discharged from service for the same cause.

Clinic Maintains Child Health Theater

University of California Playroom Teaches Health to Waiting Children

BY MRS. JOHN COLLIER, ASSISTANT DIRECTOR, CHILD HEALTH ORGANIZATION OF AMERICA, MILL VALLEY, CALIF.

A DELIGHTFUL surprise awaits the children paying their first visit to the clinics of the University of California in San Francisco. As they step into the entrance hall of the big clinic building a gay poster of the clown Cho-Cho directs them to the Children's Health theatre.

Shedding self-consciousness, or fear of the doctor, they mount the stairs only to be greeted by a jolly younger brother of the knowing clown on the lower floor who bids them "Stop," with the proud gesture of the traffic cop, then commands, "Learn My Health Rules." Beyond Cho-Cho Junior, on either side of a broad hallway they see an array of small heads, black, brown, red and golden, all bent over low tables. On a busy clinic morning thirty or more youngsters will be seated at the long tables at work with crayons, pencils, plaster-sene, jigsaws, scissors, and paste-board.

As the new-comers stand fascinated a pleasant faced young woman in a blue smock explains that while they wait their turn to meet the doctor, they may play in the "health room."

Mother is asked to be seated in the "theatre" where she may save a seat for her children for the marionette show that will begin at 11:00. The mother presents her clinic card at the window of a real truly "theater en-

trance," inscribed in bright colors with the legend "Children's Health Theater," only the ticket man in this instance is a white capped nurse who assigns her patrons to the care of the proper doctor, and notifies parents and children when it is their turn.

Mother looks back doubtfully at her off-spring. Hand in hand with the blue smocked lady they are making a solemn tour of inspection, choosing what they will do. She sees her nine year old girl take her place in a group of girls who are furnishing a doll house. But what will her irrepressible seven year old boy choose? He finds a train of cars and some tracks set up in a sand box. With a sigh of relief she seats herself in the theatre, takes out her tatting, and settles down for the first bit of comfort she had ever hoped for—in a clinic.

Clocks Tell Health Schedule

Mother works undisturbed until her two come running with the plea, "Give us ten cents. All the kids out there are getting milk, just like soda water, with a straw. We want some too." The amazed mother argues that they never drink milk, that it does not agree with them, that on the way home they will stop at the "5 and 10" and get two big bags of candy with that ten cents. But the children insist that all the others are drinking milk and they want to too. Incredulous, she follows to watch the children sipping milk through straws from miniature milk bottles and munching graham crackers. "They'll be sick tonight, sure," she mumbles disapprovingly. "I never give them milk."

Before the marionette show begins the children return again, and cuddling, one on either side of her, both talk at once. "This is a picture of Cho-Cho. He's running a race with this boy and girl to see who can weigh the most each month. The teacher out there says that we can race too if we follow these rules. They're all about going to bed early, and drinking milk, and eating lots of vegetables. The teacher says we can come back here once a month and play some more health games, and be weighed. Why don't we have green

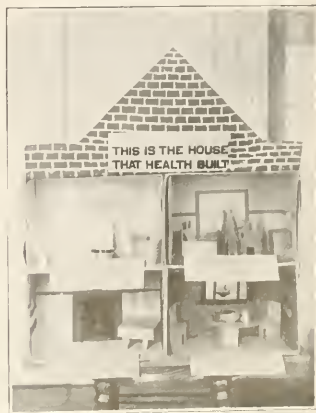
vegetables? You never give us anything but potatoes."

Before the amazed mother had time to respond, another blue smocked lady is announcing the beginning of "Mary Gay's Bed Time Adventure," and the marionette play is on. Fascinated, mother and children watch the amusing antics of the dragon, and of "Late Hours," the jewel thief, and deeply sympathize with Mary Gay, and the Fresh Air Sprite, and charming little "Early to Bed."

When the show is over, and the nurse directs mother and children to the examining room of the doctor to whom they have been assigned, both boy and girl forget to be afraid of this big white-aproned stranger. Instead they want to tell him all about Mary Gay and the dragon. After he has given the examination, and directions for treatment, the mother and children are not at all surprised when he presents each child with a long white card decorated with tiny clock faces, entitled, "Boys! and Girls! Play the New Health Game Every Hour of the Twenty-Four." With his fountain pen he fills in the hands of the two empty faced clocks, giving the time for each child to start to bed and the time to be in bed. He then explains directions printed under the other clock faces—what to do at 7:00 in the morning; what to eat for breakfast; what



Cho Cho directs children to the health theatre where marionettes perform daily.



The House that Health built constructed by children waiting their turn in the clinic.



By colored crayons, jig saws and plastersene the lesson of health is taught entertainingly. The interested children at once translate maxim into practice.



The marionette play "Mary Gay's Bedtime Adventure" in which are cast Late Hours, the jewel thief, Mary Gay, the fresh air sprite, and little Early to Bed.

to eat for dinner; and so on through the simple list of health habits.

When he speaks of the need of one quart of milk a day for every growing child, and of the delicious ways spinach, cabbage, and other leafy vegetables can be cooked, the children nod their heads wisely. The teacher outside had told them of that. When he finally says they can come back to see him the following Saturday, the boy exclaims, "Gee, we can beat those other kids out there. We will get weighed next week, and learn a whole lot more about health."

What has been happening in that "Health Play Room" to have so aroused the enthusiasm of these young patients? Doll houses, trains, jig-saws, scissors, and plastersene—how do these rainy day "life savers" connect up with the monthly gain in weight? These devices are of the child's world. Speaking in terms of them is speaking the child's language. They can be so used as to interest children in the practice of health habits, whose goal is not a lonely throne in a far-away heaven, but an immediate reward in ounces and pounds.

Ingenuous methods for indirect health teaching are employed at the Children's Health theatre. As the girls set to work to build their doll house out of four shoe boxes, the director of the play room helps them decide that the four most important rooms are bedrooms, bathrooms, kitchen, and dining room. As the little girls fashioned their furnishings, the director drew from the group facts about their own home use of these rooms, until together they had worked out the health habits that should be practiced in each room.

But far more important than the

discussion of health habits, that the director had called forth is the appealing picture of the rewards of health she has helped them build in their own minds as their busy fingers worked with card-board and scissors. The enjoyment of health is pictured in terms of rosy cheeks, glossy hair, and graceful carriage of body; in terms of "bubbling over," good spirits, and the vigor of mind and body that gets the most out of work and play. Health, Strength, Joy—skillfully the director makes these abstractions real for the children.

When children in a group are offered the choice of interesting hand-work, everything that is alive and responsive in them is released. The adult gives more—makes more imaginative effort to speak the child's language. Hence, the health enthusiast has a better opportunity to give out ideals to the active group in the play room than the nurse or the doctor dealing with the more or less awed and frightened individual child. It is true that the family physician has a far better chance to teach health than the clinic doctor. Knowing the child over a period of years he can become a sympathetic friend, whose advice and encouragement, whose opinion as to what is worth while in life, will be sought by the child. But the clinic director, with his brief touch-and-go contact with both mother and child is dependent upon the clinic "atmosphere," which alas, is dreary, or at least negative, where no effort is made to make it otherwise.

But to return to the health play room at the University of California, let me give briefly some simple devices used for teaching health. The

jig-saw can make small toys or useful objects for the child to take home; tops can be decorated with fruits and vegetables; napkin rings can be made in the form of Noah's Ark animals, decorated with such verses as the following:—

The cat, her hair
Is fine as silk
Because she always
Drinks her milk.

The duck is always
Neat and trim
Because he loves
To bathe and swim.

An unfailing source of interest is the making of original reading books. Children are given blank books and crayons and asked to illustrate and write about health habits. Amazing free hand drawings and reading matter that would astonish any public school teacher who had not tried this device are produced. The making of health posters always interests certain of the older children. The tiny youngsters are fascinated by the "Game of Healthland." With the help of the older children the sand box is transformed into the "map of Healthland" as given in the "Healthland Flyer" published by the Child Health Organization of America. Out of plastersene and colored card-board, Spinach Greens, Fruitvale, Long Sleep Mountain, and all the other towns are quickly reproduced. The younger children then operate the railroad running through Healthland, an inexpensive "wind-up" train with a generous supply of track. An older boy usually plays conductor, and calls out the stops, improvising many "specials" and "excursion" trips through Healthland.

There are other health games: "Cho-Cho's Health Game," a fascinating card game published by the Child

Health Organization; a panches-board with the "safetys" marked after the health habits, the final "home" marked "HEALTH," while the "don't" mark the "danger" zones. The old fashioned group games such as "Stage Coach" and "Packing the Trunk" can be amusingly adapted to interest the children in the different health foods.

One of the first requirements for successful health teaching in a clinic is a cheerful environment. No matter how cramped and make-shift the housing, walls and furnishings can always be painted in soft, pleasant colors. At the University of California clinic an effort is being made to have beautiful murals. Two wall spaces are already so decorated. Besides helping to create the right atmosphere, the children use the vegetables and fruits portrayed in these pictures as models for their work in plastersene. It is sometimes possible to secure such decoration through offering competitive prizes for the best murals to an art school, the successful students then putting their drawings on the walls, the clinic paying for the paint. Or friends of the clinic may raise funds to pay for the best artistic talent the community offers. Even where murals are not possible, do not let the house painter decide on your color scheme. An artist can always be found to make out a color scheme that will be pleasing to adults and children alike. In one instance where the house painter was the arbiter, the whole clinic was painted a horrible battle-ship grey, which chilled both adults and children.

Popular With Ward Children

At the University of California hospital it has been found most effective

and practical to introduce the health work in the wards.

In the afternoon, when there are few clinics, and the wards are comparatively free from doctors and treatments, the health director and her volunteer helpers work with the ward children, individually and in groups. After a child's interest has been aroused by some simple hand-work, there are many practical opportunities for the immediate practice of health habits.

How many have watched the trays with well chosen food—just right as to balance and calories—come down from the children's ward with only the dessert, or the potatoes, or the bread and butter eaten? The nourishing soups, milk, eggs, meat, cereals, green vegetables and fruits too often go begging. The nurse has no time, nor has she been instructed, to work with each child until he eats all his food, so that these children, who most need nourishment, get far less than the average child at home. Here is the health director's chance for some practical health teaching. Each child can keep an attractive chart of the day's menu, and the quantity eaten. The nurse's cooperation can be enlisted, and each child helped to fill out his chart before the trays are removed. The older children even enjoy roughly computing the number of calories they eat.

In how many hospitals do the children clean their teeth? The social service department could well make the purchase of the proper size tooth-brush and powder a requirement of entrance.

In this hospital, four bed units have taken the place of the large wards. This offers opportunity for group

competition, as an effort is made to assign the children according to age. Not only wholesome competition, but group achievement, is made possible by these smaller units.

Last year four room-mates, boys between the ages of ten and twelve, made a health marionette show, for which they wrote the lines.

Title: The stomach's strike.

Scene: A child's stomach—Time: Early in the morning.

Story: One night Johnny had received a present of money. Next morning before joining the home breakfast group he does some shopping on his own account at the corner store. A piece of chocolate cake, a banana, and a lollypop descend into his stomach. Later, when oatmeal and egg get a chance there is no room. That abused servant, the stomach, rebels. A strike ensues that only Doctor Castor Oil can quell.

The creation of this epic gave the keenest pleasure and amusement to these boys and afforded an approach to health that was the opposite of "preachy."

Every device that succeeds in the clinic is doubly valuable in the ward where more individual attention can be given, and where children often remain for weeks. The ward offers much greater opportunity for story telling, both by adults and children, reading of health stories, singing of health songs, and group games. The original health books and readers are of especial value in the ward as the child can keep blank book and crayons conveniently under the pillow, and so be able at all times to amuse himself.

One of the charming customs that has been established here is the celebration of birthdays. Whenever a child's birthday falls within the period of his hospital stay, a birthday party is given. The other children make



Traffic cop Cho Cho at entrance to Children's theatre demands that his health rules be learned.



Health teaching to the hospital wards interests the patients to eat the nourishing fare prepared.

simple presents, and all make paper caps to wear, decorated with fruits and vegetables. A special health song is usually composed in honor of the day. Last year the children even gave a surprise birthday party to Dr. Lucas, himself. They knew that he was dieting to keep down his weight, so they presented him with a large basket of shellaced fruits and vegetables as a decorative ornament for his office, a daily reminder to avoid the sinful carbohydrates. A many stanza song was composed for the occasion which expressed the children's revolt—and what they pictured must be Dr. Lucas' against health foods, sung to the tune of "Rufus, Rufus, etc."

Dr. Lucas, we've been thinking,
How much nicer it would be,
If all the spinach, it was growing
Far beyond the Northern Sea.

This is but one of the many instances that might be given to show the friendly and intimate spirit that creeps into the relationship between adults and children whenever health teaching is successfully carried out, whether in class-room, clinic, or ward. In the school the atmosphere of many a classroom has been transformed from the too tensely critical, or the coldly indifferent, to that of friendly human relationships under the kindly influence of the new health teaching. In the same way doctors and nurses find it easier to look upon small patients as individuals, instead of "cases" when the warmth, fun, and informality of health teaching have penetrated the clinic and ward.

Children who leave the wards very much under weight, and who have had

these happy contacts with the health director, can easily be persuaded to return weekly to the clinic for help in regaining normal weight.

One of the most interesting aspects of health teaching in the clinic and wards is the educational value of the work for medical students, nurses, and physicians. It may very well serve as a practical demonstration of the great need today for practical courses in psychology and pedagogy in medical and nursing schools.

And now you are asking how can this alchemy be set to work? Where do you catch your health director, and how do you interest and train volunteers for the work?

Dr. Lucas Originates Plan

At the University of California the plan for transforming the children's clinic into the Children's Health Theatre originated with Dr. William Palmer Lucas, professor of pediatrics, University of California medical school. Dr. Lucas had seen how marionettes can popularize health teaching at Lyons, France, while director of the children's work for the American Red Cross. When he learned that a Mrs. John Collier, assistant director of the Child Health Organization of America, was to make a demonstration of health teaching in the San Francisco schools, under the auspices of the San Francisco Tuberculosis Association, Dr. Lucas asked that the association also undertake a demonstration of health teaching in the children's clinics and wards of the University Hospital.

To carry out this plan the Women's

Auxiliary of the University of California Hospital provided the full time services of a trained recreational leader, Helen Crawford of Henry Street Settlement, New York. Miss Crawford not only developed the health education work, but organized a group of some sixty volunteers to take part in all the usual volunteer services, including some therapeutic work with adults. Mrs. Collier provided the health methods and devices that have succeeded in the class-room work, and Miss Crawford transplanted these in terms of the various handicrafts practicable for hospital use. Volunteers, who are by temperament fitted to work with children, soon become skillful in popularizing health teaching. When Miss Crawford had to give up the work, after nine months, a clever young school teacher was found who carried on the work admirably.

The following literature will be found of use in first organizing health education work in a clinic: Health Education Series, U. S. Bureau of Education including: Suggestions for a Program for Health Teaching in Elementary Schools, Diet for the School Child, Milk and Our School Children, and Further Steps in Health Teaching. Those suitable to read aloud: Child Health Alphabet, Cho-Cho and the Health Fairy, Rosy Cheeks and Strong Heart, Rhymes of Cho-Cho's Grandma, Miss Jenkins' Sketch Book, Many Roads to Health.

Helpful Child Health Organization literature includes: Healthland Flyer, Healthland Map, Happy's Vanity Case.

Levi Memorial Hospital Treats 5,000 Yearly



Clinics supplement the hospital service

Leo N. Levi, Memorial Hospital, Hot Springs, Ark., maintained by B'nai B'rith, has in its seven years' experience treated 2,609 patients in the hospital proper and 13,000 in its clinics. During the past year 5,000 persons, 740 in the hospital and 4,000

in its clinics, received treatment.

The plant consists of a three story main hospital with well equipped laboratories. Its most urgent need is a nurses' home for which the order hopes to raise \$25,000. A plot 150x150 adjoining the hospital has been

given by the United States government for the erection of such a home.

The hospital treats only serious and obstinate cases which will be benefited by use of Springs waters. It is maintained by the B'nai B'rith order for its sick poor.

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The Possibility of Extending Human Life*

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THE subject under consideration has been a favorite one for speculation from the earliest antiquity up to our own time. The poets, prophets and philosophers have all been concerned with it. But, unfortunately, they have approached the subject with a bias. They have permitted their personal desire for extended life to determine their thought. In our own time, Shaw has given dramatic treatment to the subject, but he has approached it like the rest and has assumed that mere wishing can be converted into actual accomplishment. We will not approach the subject from that angle. We are concerned primarily with the facts. We are more fortunate than our predecessors. We have a body of knowledge which they lacked and, what is more important, a scientific method of analysis. We shall not say arbitrarily with the Psalmist, "The days of our years are three score and ten." We shall rather ask and attempt to answer a series of questions such as: "What are the conditions of health and mortality which determine the life span?" "What is the present duration of human life?" "How does that vary from place to place and from group to group?" "How much has it increased in various periods of time and what elements have led to the increase?" Finally, "How much more is there still ahead of us?" In such an approach, it is hoped there will be no room for dogmatism and no pretense to finality. We shall be humble seekers for the

"What are the possibilities of extending human life? This question can have meaning only as it has reference to the present state of our knowledge of preventive medicine and applied sanitary science and to the present levels of human well-being. It would be futile for us to prognosticate on the basis of any substantial future advances in medical, surgical, or sanitary knowledge, certain as we may well be that important advances will be made and within a reasonably short time. We are, therefore, virtually compelled, in seeking an answer to our question, to piece together a picture of an attainable mortality experience out of the best experience that now exists. There can be no complaint of undue optimism when we rest our case upon actual achievements or what is on the threshold of achievement."

truth wherever that may lead us.

Obviously, the first step in our discussion is to discover a yardstick or measure of the human life span. No scientific discussion of the subject is possible without that. The first measure we have is one with which you are familiar, namely, the death rate. You know, for example, that the death rate of New York City last year was 11.17 per 1,000. This means that there occurred in that year ap-

proximately 11 deaths for each 1,000 of the population, or 112 deaths per 10,000 of the population, or, as we sometimes say, 1,117 deaths per 100,000 of the population. This figure is obviously a rough measure and tells us little or nothing with regard to the longevity of the people of the city. We immediately get into difficulties with this rate when we begin to compare the mortality of New York City with that, say, of Seattle, Washington, where the rate is lower. The fact is, that the populations of New York City and of Seattle are not constituted exactly alike as to the proportion of young and old people, and in other respects. If, for example, there are more babies and more old folks proportionately in New York City than there are in Seattle, that alone will materially increase the total death rate of New York City because it is among the babies and old people that mortality is heavy. This is universally recognized and, instead of the crude death rate for the whole population, we proceed to prepare death rates for specific age divisions of the population as well as for the whole. There is, for example, what we call the infant mortality rate. This means the death rate in the first year of life. We calculate, also, the death rates for the period of pre-school life, for other ages of childhood, for the broad span of early adult life, then of middle life and old age. These values give us a measure of mortality for each age division of life, and may be compared for various places. The finer the subdivision of age, the more precise becomes comparison of mortality.

*An address delivered before the Harvey Society of New York, at the New York Academy of Medicine, December 16, 1922.

The life table is not as complex as it appears to be. As a means of measuring the life span it is essentially accurate, is simple in construction, once the graduated rates of mortality are obtained, and produces figures for various places and various groups of people which are comparable. It is usually difficult to compare the health conditions of different countries or even of different cities in the same country by comparing their death rates, because of the varieties of age constitution of the people in the several places or because of so many other conditioning factors which affect the death rates. The life table irons out these differences. It applies the actual facts of mortality for the whole span of life and, later, gives the resulting values of expected longevity for the average individual of the group.

Comparative Longevity

Let us become familiar with some of the very obvious facts of longevity at the present time. The expectation of life at birth for the entire population was nearly 51.5 years in 1910.

TABLE 1.—COMPLETE EXPECTATION OF LIFE AT SPECIFIED AGES—MALES AND FEMALES AND BOTH SEXES IN UNITED STATES ORIGINAL REGISTRATION STATES, 1910.

Age	Both Sexes	Males	Females
0	51.49	49.86	53.24
1	57.11	55.94	58.37
2	57.72	56.59	58.94
3	57.44	56.33	58.63
4	56.89	55.79	58.08
5	56.21	55.11	57.39
10	52.15	51.07	53.31
20	45.53	42.48	44.66
30	35.70	34.70	36.79
40	28.20	27.32	29.15
50	20.98	20.32	21.67
60	14.42	13.95	14.90
70	9.11	8.83	9.38
80	5.25	5.10	5.37
90	3.03	3.01	3.05
100	1.55	1.81	1.91

(Table 1). The maximum expectation occurs in the third year when it is 57.72 years; that is because the child of three has already overcome the heavy initial mortality in the first two years of life. Even at age 10, the expectation is greater than at birth and for the same reason. But, from this age onward, the expectation declines regularly with every advancing year of life. At 25, the expectation in 1910 was 39.6 years; at 40, 28.2 years; at 50, nearly 21 years. That means that persons surviving to age 50 may, on the average, expect to survive to age 71. Some, of course, will die in their fiftieth year and some

may be centenarians. But the average individual at 50, if we may conjure up such an imaginary person, may, with reason, expect to live to

more than two years greater; at 50, it is a year and one-third greater; and at 70, about one-half year greater.

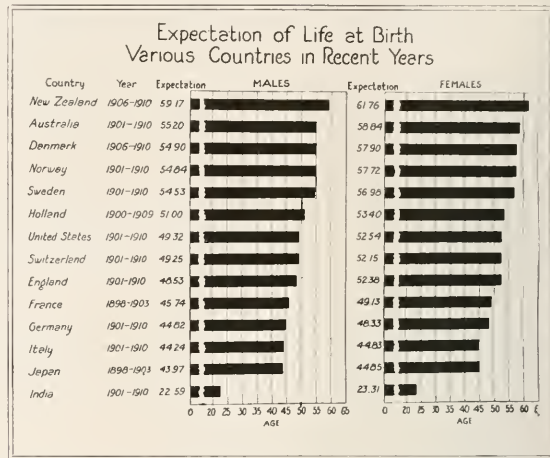


Chart 1.—Shows how the duration of life varies from place to place in the civilized world.

age 71; or, as we put it, the average length of life remaining to each one of the survivors at age 50, is 21 more years. Even at 70, there are still more than nine years of expectation and so on in a diminishing degree to the end.

Sex is a very important element in mortality. You know that the mortality of women is less than that of men. Their expectation of life is, therefore, greater. The life table for the two sexes tells us how much greater. Table 1 also shows the facts for the original Registration States in 1910, at selected ages, for males on the one hand, and for females on the other. The females have an expectation at birth three and one-third years greater than for males; at 30, it is

Table 2 and Chart I show how the duration of life varies from place to place in the civilized world, reflecting the varieties of health standards and of well-being prevailing in the various countries.

New Zealand shows the greatest expectation of any of the countries listed. For males, the complete expectation was 59.2 years at birth, as compared with 49.3 in the United States. The Australian figures follow next in order of excellence. The Scandinavian countries, Denmark, Norway and Sweden, are very close to Australia in the length of the life span. The conditions of England and Wales approximate those in the United States. France, Germany, Italy and Japan are a few years below the United States

TABLE 2.—COMPLETE EXPECTATION OF LIFE AT SPECIFIED AGES—VARIOUS COUNTRIES IN RECENT YEARS

Country	Year	Males				Females			
		0	30	50	70	0	30	50	70
Australia	1901-1910	55.20	36.52	21.16	8.67	58.84	39.33	23.69	9.96
Denmark	1906-1910	54.90	38.00	22.10	9.30	57.90	40.10	24.10	10.00
England	1901-1910	46.53	34.75	19.76	8.39	52.38	37.36	21.81	9.25
France	1898-1903	45.74	34.35	20.26	8.42	49.13	36.93	22.14	9.21
Germany	1901-1910	44.82	34.55	19.43	7.99	48.33	36.94	21.35	8.45
Holland	1900-1909	51.00	37.80	21.80	8.90	53.40	38.50	22.90	9.40
India	1901-1910	22.59	22.44	13.97	6.17	23.31	22.99	14.28	6.22
Italy	1901-1910	44.24	35.94	20.73	8.02	44.83	36.53	21.47	8.02
Japan	1898-1903	43.97	33.44	18.97	7.89	44.85	34.84	21.11	8.77
New Zealand	1906-1910	59.17	38.78	22.67	9.38	61.76	40.45	24.30	10.31
Sweden	1901-1910	54.84	38.86	23.96	10.57	57.72	40.24	25.31	11.23
Norway	1901-1910	54.53	38.57	23.17	9.85	56.98	40.20	24.74	10.63
Switzerland	1901-1910	49.25	38.80	18.90	7.78	52.15	36.10	20.71	8.15
United States	1901-1910	49.32	34.80	20.59	8.96	52.54	36.75	21.86	9.52

in the average duration of life. In India the life span is only about one-half of what it is in European countries. The important point to remember is the great diversity in the span of life in the various countries, ranging from 61.8 years for females in New Zealand to 22.6 years for males in India. You will realize why these differences occur in the light of the sanitary, social and economic conditions that prevail in the various parts of the world. You will understand also why the people of some countries enjoy great prosperity and a larger measure of well-being while those in others are always near or under the line of distress and general misery.

Increase in Longevity

A substantial increase in the life expectation has occurred in the last century. (Table 3.) This fact is the best indication we have of the greatly improved material progress of the great mass of people in the civilized countries of the world. The figures for England and Wales are the most instructive for our purpose. The first life table for the population of that country described the period between 1838 and 1854. The average length of life was then nearly 41 years. A series of life tables follows the first and shows a successive gain from decade to decade. The seventh table, that for 1910 to 1912, gives an average expectation of nearly fifty-three and one-half years. There has, therefore, been a gain in the interval of seven decades of twelve and a half years. On the Continent, the best historical data are for Sweden. A table for the years 1816 to 1840 shows expectations of forty-one and one-half years. The last table (1901 to 1910), gives fifty-five and three-quarter years. These are gains of fourteen and a quarter years in the interval of eight decades. In our own country, the first table of any value is for Massachusetts (1855). The values agreed essentially with those for England and Wales for the corresponding period, the life expectation in both Massachusetts and in England and Wales being about forty years. In 1910, the Massachusetts figure had increased to fifty-one years, showing a gain of eleven years in the half century. In 1920, the figure was over fifty-five years or a gain of more than fifteen years in sixty-five calendar years. In the Registration States of the United States, we find an increase of six years between 1901 and 1920.

There is another and perhaps better way to see how great has been the improvement in the life span in

TABLE 3.—EXPECTATION OF LIFE AT BIRTH, PRINCIPAL COUNTRIES OR STATES AT VARIOUS TIMES

Country—Year	Expectation at Birth	Country—Year	Expectation at Birth
England and Wales		Holland	
1838-1854	40.88	1850-1859	37.32
1871-1880	42.98	1870-1879	39.55
1876-1880	43.56	1880-1889	43.75
1881-1890	45.42	1890-1899	47.60
1891-1900	45.95	1900-1909	52.20
1901-1910	50.45	Norway	
1910-1912	53.42	1856-1865	48.67
Scotland		1871-1880	49.81
1861-1870	42.09	1881-1890	49.97
1871-1880	42.37	1891-1900	52.27
1881-1890	45.12	1901-1910	56.28
1891-1900	46.06	Denmark	
1911	51.64	1835-1844	43.65
France		1860-1869	44.55
1817-1831	39.55	1880-1889	47.85
1840-1859	40.15	1885-1894	48.95
1861-1865	39.82	1895-1900	51.70
1871-1881	42.12	1906-1910	56.40
1898-1903	47.43	Finland	
Italy		1881-1890	42.80
1876-1887	35.25	1891-1900	44.25
1899-1902	43.04	1901-1910	46.30
1901-1910	44.53	Germany	
1910-1912	47.38	1871-1880	37.01
Belgium		1881-1890	38.71
1881-1890	45.11	1891-1900	42.26
1891-1900	47.10	1901-1910	46.57
Switzerland		1910-1911	49.04
1876-1881	41.90	Prussia	
1881-1888	44.49	1867-1877	36.68
1889-1900	47.10	1890-1891	40.60
1901-1910	50.70	1891-1900	44.85
Sweden		1900-1901	43.95
1816-1840	41.53	1906-1910	48.22
1841-1845	41.27	Bavaria	
1846-1850	43.48	1891-1900	39.48
1851-1855	42.57	1901-1910	43.75
1856-1860	42.31	Saxony	
1861-1870	44.60	1891-1900	39.80
1871-1880	46.95	1900-1911	44.77
1881-1890	50.01	India	
1891-1900	52.25	1881-1891	25.07
1901-1910	55.75	1891-1901	23.80
		1901-1911	22.95
United States (Reg. States)		Massachusetts	
1901	49.24	1855	39.77
1910	51.49	1890	43.48
1920 (Orig. Reg. States)	55.16	1895	45.35
1920 (Total Reg. States)	56.32	1901	47.75
		1910	51.19
		1920	55.25

the last century or so. That is, to observe the age at which the original number of our life table population,

100,000, is reduced by one-quarter, one-half and three-quarters. Table 4 and Chart II show the facts for Eng-

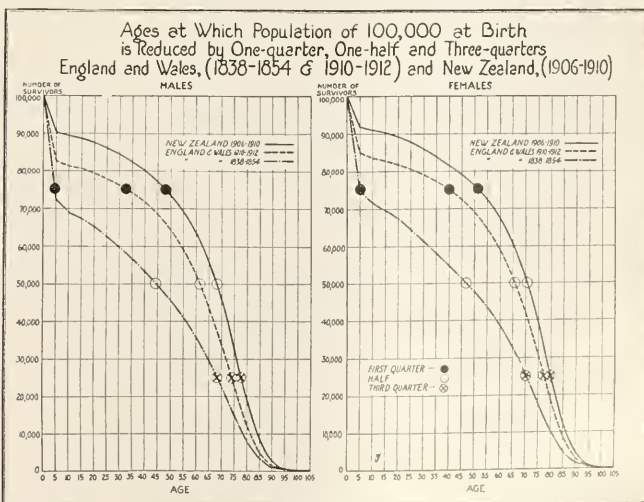


Chart 2.—Shows the facts for England at the time of first and last tables and for New Zealand at the time of this last table.

land at the time of the first and last tables and for New Zealand at the time of its last table.

The same life tables also lend themselves to another interpretation. In

bring the largest proportion of its people up to the threshold of old age.

Possibly, the most encouraging results have been obtained among insured lives, where a definite effort has

pectation of life at age ten among the four classes of insured persons (white male, white females, colored males and colored females.)

The significant thing about this insurance experience is the light that it throws on the possibilities of further life extension. The mortality rate and the corresponding average after-life-time respond very quickly and favorably to intelligent effort. The same thing has happened in the general population of the United States and in the European countries whose figures we have quoted, but the response has been less pronounced, probably because conservation work was applied less exactly and less intensively. The lesson is forcibly brought home that we are still far from having attained the maximum possibilities in the extension of human life under present conditions in any group among whom the experiment has yet been tried.

Possibilities of Future

What, then, are the possibilities of extending human life? This question can have meaning only as it has reference to the present state of our knowledge of preventive medicine and applied sanitary science and to the present levels of human well-being. It would be futile for us to prognosticate on the basis of any substantial future advances in medical, surgical or sanitary knowledge, certain as we may well be that important advances will be made and within a reasonably short time. We are, therefore, virtually compelled, in seeking an answer to our question, to piece together a picture of an attainable mortality experience out of the best experience that now exists. There can be no complaint of undue optimism when we rest our case upon actual achievements or what is on the threshold of achievement. This, then, is our assumption. Let us see what that leads to in the actual working out of our case.

The most important single item of mortality is the record for the first year of life. Fifteen per cent of all the deaths that occur each year are of children within the first year of age. Infant mortality cuts very heavily into the life expectation because a death in that year erases the entire expectation for that life, whereas a death at a later age, say forty or sixty, removes only relatively few years of life, and, as a result, the effect on the average is slight. Fortunately, there is compensation for high infant mortality, namely, its relative ease of prevention and control. In the Birth Registration Area

TABLE 4.

Country	Date of Life Table	AGE IN WHICH THE ORIGINAL NUMBER OF A GENERATION IS REDUCED BY—					
		One-Fourth		One-Half		Three-Fourths	
		Males	Females	Males	Females	Males	Females
England	1838-1854	3.25	5.00	44.33	46.33	68.17	70.08
	1910-1912	33.25	40.00	61.33	65.67	78.83	77.08
New Zealand	1906-1910	48.33	51.50	68.00	70.50	77.83	79.83

England, at the time of the first table, only 29.5 per cent of the male and 32.4 per cent of the female population attained age 65, whereas at the time of the last table 43.5 per cent of the males and 51.2 per cent of the females attained that age. In New Zealand, where the best longevity conditions prevail, 55.9 per cent of males and 60.5 per cent of females reached the age of 65 in the period 1906 to 1910. As this is the age which closes the active working period of life, it must be obvious that that nation is the most productive, and its people enjoy the largest measures of longevity, and shall I add prosperity, which can

been made to extend the life span. In 1909, the Metropolitan Life Insurance Company began an active campaign of health education among its millions of industrial policy-holders. This was supplemented with the development of nursing care for those who were acutely ill. The death rate during this period showed continuous improvement, dropping about one-third in the decade. Accompanying this drop in the death rate, there was an increase of eight and one-half years in the expectation at birth for these insured lives representing the working population of America.

Chart III shows the gains in ex-

Gain in Expectation of Life at Age 10

Wage Earners Insured in
Metropolitan Life Insurance Company
1921, 1919-1920 and 1911-1912 Compared

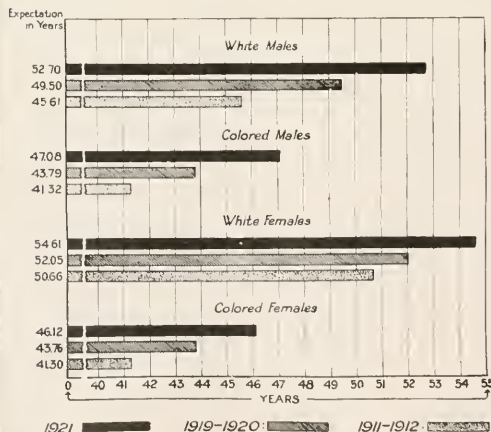


Chart 3.—Shows the gains in expectation of life at age 10 among the four classes of insured persons.

of the United States, the infant mortality rate dropped in 1921 to 76 per 1,000 births. In New Zealand, in 1920, it was below 50 per 1,000 births for the entire country, and there are a large number of cities in the United States, some of good size, where the infant mortality at the present time is below 40 per 1,000 births. We have accordingly started our hypothetical life table with the basic assumption that an infant mortality rate of 38.2 expresses an entirely realizable figure under present conditions, although it is only a third as great as that in the 1910 Life Tables, which we have just examined. Do not be unduly disturbed by what looks like a very radical assumption of too low infant mortality rate. It really is not at all extreme. If anything, it leans over to the side of conservatism, because the assumed value has not only been attained in any number of places, but there is every indication that it is attainable by the whole country within a relatively short period of years. We can, in fact, surpass it by paying attention to one particular, namely, the suppression of the infant mortality of the first month in which hardly anything has as yet been achieved on a country-wide scale. In another place,¹ the author has recently outlined a procedure which will do for early mortality what the general baby welfare movement of the last twenty years has accomplished for children above the first month. The detection and handling of syphilis in the mother, the control of the toxemias of pregnancy, and the provision of good obstetrics for the great body of parturient women, coupled with the type of nursing care now largely available in the cities of the United States, will give us what we hope for. This favorable level of the infant mortality rate has been amply demonstrated as attainable. Infant mortality rates of 20 per 1,000 births and even below that are on the horizon. We have assumed a higher rate of 38.

In like manner, we have proceeded on the general assumption that the mortality in the succeeding four years of childhood is materially reducible. Our assumed figures for the second, third, fourth and fifth years vary between 34 and 40 per cent of the actual mortality rates for the respective ages in 1910. Each one of the values was determined with the greatest care, having in mind the rates prevailing in the most favored countries, and what we know can be done to pre-

vent mortality from the diseases and conditions of the pre-school years. Thus, we have assumed a mortality rate of 4.2 per 1,000 for the third year of life. In New Zealand, nearly fifteen years ago, the rate was 5.3. Our figure is only 20 per cent below the relatively remote New Zealand figure. In the third year of life virtually two-thirds of the entire mortality is due to such infections as typhoid fever, diarrhea and enteritis, the four communicable diseases of childhood—measles, scarlet fever, whooping cough and diphtheria—tuberculosis and the respiratory diseases. Who will deny that these conditions are now within control, provided we mean to control them? How great is the promise for the eradication of diphtheria through the general application of methods now employed in this very city, *viz.*, that of wholesale inoculation of children with toxin-antitoxin? Yet, diphtheria looms large in the mortality not only in the third year of life, but in all of the years of childhood after the first.

Between the ages of ten and sixty, in that broad fifty-year span of life, we have made one basic assumption throughout, namely, that mortality can be reduced to one-half of the figure which prevailed in 1910. This is an important point in the procedure of building up our hypothetical life table. Between ages five and ten, the values were interpolated so as to give a smooth juncture between ages three, four and five and the ages after ten. It meant graduating the values from 40 per cent of the 1910 mortality at age five to 50 per cent of the 1910 figure at age ten. At age ten, we used a death rate of 1.1 per 1,000; the New Zealand value was 1.4. The vital item in our procedure was, however, the assumption that in the age range covering virtually the entire active period of life from ten to sixty, the mortality is capable of a 50 per cent reduction from the 1910 figure. Again, our values are, for the most part, only 20 per cent below those for New Zealand in recent years. But, in that country, as in our own, there is still much preventable mortality from tuberculosis in the working period of life. There is also the serious mortality from occupational and other accidents. In the latter part of this broad age period, there is already a heavy death rate from the diseases of the heart, kidney and blood vessels, much of which is preventable and has actually been prevented or postponed in limited groups of the population.

Our assumed rates between ten and sixty are, moreover, very close to

those attained by the best life insurance companies in their current Ordinary experience. At some of the ages, the actual insurance experience is even lower than the values we have assumed. We in the life insurance business are more and more impressed with the splendid possibilities before us for the further curtailment of mortality among insured persons. Through such procedures as the annual physical examination and the hygienic follow-up to encourage the insured to bring their impairments under medical supervision, we hope to attain large results. An investigation into the mortality of a group of Ordinary policy-holders of the Metropolitan who had availed themselves of the privilege of the Life Extension Institute examinations over five years ago showed at the end of the period a mortality 28 per cent lower than that of the best control group we could muster, having in mind all the logical requirements of the comparison.

We are especially optimistic as to the future because of the amazing reduction in the death rate from tuberculosis which is occurring throughout the world. Since 1911, the disease has declined 50 per cent among those insured in the Metropolitan and almost as much in the general population of a number of progressive cities. The disease is not only declining rapidly in actual mortality, but the peak or maximum rate by age is constantly being pushed forward into the later years of life. This has the effect of extending the expectation. On the other hand, we are not doing so well with reference to the diseases and conditions which reflect personal hygiene and the general care and use of the human body. The death rates from the so-called degenerative diseases, like heart disease, Bright's disease, cerebral hemorrhage and the other diseases affecting middle life and the older ages are not declining. We are making little headway in spite of increasing public and medical interest in them. These deaths represent heavy losses to the community because they involve in many instances people still in their prime and at the height of their usefulness. The development of a well-conceived campaign against these losses, organized along lines which have proved successful against tuberculosis, will, according to the best medical opinion, produce excellent results. Together, the three diseases—heart disease, Bright's disease and cerebral hemorrhage—curtail the expectation by about four years. A further reduction in the in-

1. "The Mortality of Early Infancy." Read before the Thirteenth Annual Meeting of the American Child Hygiene Association, October 13, 1922, Washington, D. C.

cidence of the acute infectious diseases, such as typhoid fever, diphtheria and acute rheumatism, which are so fruitful in producing damage to the heart, kidneys and vascular systems of young people, will bring important results, as will also the extension of health education and the inculcation of better health practices among adults. It is reasonable to expect that an appreciable part of the 50 per cent mortality reduction postulated by our hypothetical life table will be accomplished through these means.

The further extension and the more intensive application of the life-saving campaign to industry likewise holds out much promise. The prevention of occupational mortality has scarcely been begun as a nation-wide effort. There can be no question that certain industrial processes widely developed throughout the country seriously shorten the life span. The effects of excessive heat, of poisonous fumes, of deleterious dusts and actual contact with poisonous substances, unduly long hours of labor, all result in raising the mortality rate of industrial workers far above those for the general population. The excellent physical endowment of industrial workers assures a greater life expectation under conditions of improved industrial hygiene than is actually attained at the present time. Occupational accidents alone are still responsible in the United States each year for as much as fifteen thousand deaths, for the most part of men in their prime. Employers of labor can give material aid in the campaign to reduce adult mortality in America one-half. The ever-growing interest of employers in safety measures and in shop sanitation gives much encouragement for the future.

Please notice that we have limited ourselves to those possibilities of life saving which are reasonably likely to occur on the basis of past experience. We have made no allowance for any possible saving from cancer, for example, because it would evidently involve more knowledge than we now have of the causative factors of this disease. In like manner, we have made no assumption of life saving in old age, that is from, say, age 70 onward, because during the last half century there has been practically no improvement in the mortality among aged persons. The only liberty we have taken in the preparation of our hypothetical life table is to graduate the mortality values from 50 per cent of the actual in 1910 at age 60 to 100 per cent mortality at age 70. This

provides a smooth and reasonable transition from a period where life extension is still somewhat possible to one where no substantial gains are at present in sight.

This hypothetical life table (Table 5) expresses the best mortality we may hope for with our present knowledge and in the light of our actual achievements. The total expectation of life at birth is 64.75 years; or, for the purposes of easy reference, let us say, 65 years. This means an addition of ten years to the life span now prevailing in the United States which, as we have seen, is only 55 years. Notice that there is no sharp rise in the table after the first year of life, as there was in the earlier life tables. That is because we have reduced the infant and child mortality to a third of the previous figure. According to our new table, a person of 20, that is, one who is about to enter active adult life, would have an average expectation of 50 years of after-

TABLE 5.—HYPOTHETICAL LIFE TABLE

Age	Number Living in Specified Age Interval	Mortality Rate per 1,000	Expectation of Life
0	100,000	38.21	64.75
1	96,179	10.00	66.30
2	95,218	4.20	65.97
3	94,818	2.80	65.24
4	94,552	2.25	64.42
5	94,339	1.85	63.57
10	93,618	1.14	59.02
20	92,269	2.34	49.82
30	89,772	3.26	41.06
40	86,818	4.70	32.49
50	81,542	7.19	24.08
60	73,882	14.29	16.01
70	56,213	56.45	9.17
80	22,818	130.28	5.29
90	3,110	249.62	3.03
100	67	401.91	1.85

Note.—Constructed from Life Table for United States Registration States, 1910, on following assumptions as to mortality rates:

Age	Assumed Reduction from 1910 Rates
0 to 5	Approximately two-thirds
5 to 10	Two-thirds to one-half
10 to 60	One-half
60 to 70	One-half to no reduction
70 and over	No reduction

lifetime. That means that those crossing the threshold of manhood and

Comparison of Survivors and of Complete Expectation of Life.
Life Tables for U.S. Registration States, 1910 and 1920
and for Hypothetical Life Table

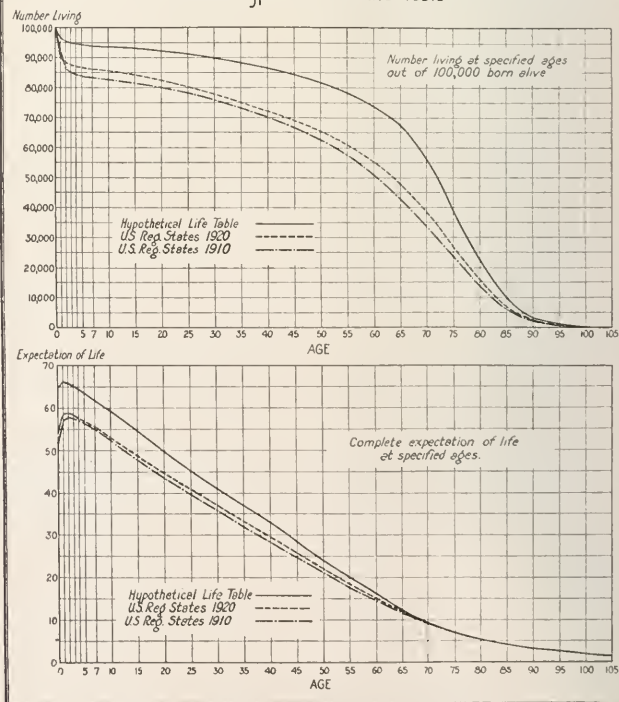


Chart 4.—Shows difference between old rates and expected improvement. The greater part of the gain is limited to early life.

womanhood may expect, on the average, to attain age 70. What a curious confirmation our figures give to the biblical allotment of three score and ten!

A comparison of our hypothetical life table with the expectation prevailing in the Registration States in 1920 indicates a possible gain of ten years at birth; of fully five and one-half years at age 20; of three and a quarter years at age 40; of two and one-half years at age 50; and of one and one-third years at 60; at 70 and thereafter there is no gain to be expected because no improvement in the mortality rates was assumed in the construction of the table. The greater part of the gain is obviously limited to early life, where there is still the greatest opportunity for preventing mortality. But the possible gains in middle life are sufficiently large to justify every effort in their attainment. (Chart IV.)

How great these gains would actually be is shown by comparing the number of deaths now occurring in the United States each year with those which would occur under the death rates called for by our Hypothetical Life Table. The total death rate would be reduced from 13.0 to 8.6 per 1,000, assuming no change whatever in the age constitution of the present population. In other words, an extension of the expectation by ten years in accordance with the suppositions of our Life Table would be accomplished by a coincident reduction in the death rate of 33.8 per cent. On the new Life Table basis, there would be a total of close to 916,000 deaths in the United States as against a total of approximately 1,379,000 which occurred in 1920, or equivalent to a saving of 463,000 lives a year. The greatest saving would be accomplished in the first year of life. A reduction of the infant mortality to a third as assumed by us means a saving of 126,000 infants a year. In fact, the saving would be 171,000 children in the first five years of life. The saving, on our assumption of one-half mortality between the ages 10 to 60, is equivalent to a reduction of 250,000 in the number of deaths in that age period. These large figures show very strikingly how great are the stakes involved in the program of life-saving implied by the Hypothetical Life Table we have constructed. It is very encouraging in this discussion to remember that these savings are just as reasonable as are the assumptions of reduced mortality whose plausibility we have defended in our previous sections.

Possibly, in assuming virtually no improvement after the close of active life, the author has opened himself to serious criticism. There are those who on plausible grounds see much improvement in mortality at the older ages as a possibility for the future. They are much impressed with the large results being obtained in small groups through emphasizing more intensive personal hygiene. They are not over-impressed with the fact that the last half century has shown no response at the older ages to the improved conditions of life. They profess to see that much of the mortality from the so-called degenerative diseases that prevails at the older ages can be curtailed by preventing the infectious diseases of early life, and by more reasonable and intelligent conduct of our personal lives. All of this seems very reasonable and I should regret very much if it were assumed from what I have presented that the span of human life is practically fixed and that no material extension of it can be expected beyond

the average of sixty-five indicated by my life table. The figure that we have presented is simply a summary of what we believe to be the most probable figure, having in mind the present state of our knowledge. It is entirely conceivable that a medical discovery of the first order which would do for, let us say, chronic nephritis, what the newer therapy has accomplished for syphilis, or what promises to be accomplished for diabetes, would add somewhat to our maximum figure. The additional gain would not be very much because the saving would be at the advanced ages when the expectation is low by comparison. All of this, however, is for the future and it would be idle for us to dwell at this time on such possibilities.

The twelfth annual National Safety Congress will be held at Buffalo, October 1 to 5, 1923, according to an announcement by W. H. Cameron, managing director for the executive committee of the Council.

Discovery of the Influenza Germ



Copr. Life Publishing Co.
How *Life* depicts the recent dénouement of the still hunt for the influenza germ which has been going on since the epidemic conditions of 1918.

Newspapers have made much of the announcement that the admirable experiments of Olitsky and Gates of the Rockefeller Institute have resulted in the isolation and cultivation from the nasal secretions of influenza patients of an organism so minute that it can pass through a filter, and which, when injected into the windpipe of the rabbit, produces in the animals' lungs conditions like those found in the lungs of human subjects of influenza.

The second generation of the organism produced typical attacks of influenza in a human subject whose nose and throat were sprayed. Noting the fact that Olitsky and Gates could get no growth of their organism from the secretions of eight persons suffering from "acute coryza," the ordinary cold, *Health* points out that one result of the discovery will be a much better discrimination in the use of the term influenza which has heretofore had too wide a connotation.

Study of Visiting Nurses

THE committee to study visiting nurses instituted by the National Organization for Public Health Nursing, completed the study of nursing in twelve cities, by January, 1923. The survey under the direction of the chairman, William F. Snow, M. D., was carried on by an accountant, or nurse investigator, or both.

Organizations studied were the Visiting Nurse Society, Philadelphia, on which the plan of study was first tried out, Public Health Nursing Association, Rochester, N. Y., Visiting Nurse Associations in Cleveland, Omaha, York, Pa., Denver and Louisville, Ky., Cherokee County Public Health Service, Kansas, Public Health Nursing Service, Oklahoma City, Okla., Bureau of Municipal Nursing, Department of Health, Los Angeles, Child Welfare Association, New Orleans, and rural work of Charlotte Cooperative Nursing Association, Mecklenburg County, North Carolina.

Additional associations are now being studied.

The general aim and plan of the committee is by studying the visiting nursing services in a sufficient number of specified centers, probably not less than 15, to evaluate the present quality of visiting nurse work and determine the "per visit cost."

The committee will recommend the content of the various types of visits made by visiting nurses; the most economical operating machinery necessary for making such visits; this to include quality of the workers, quantity, quality and character of supervision, relation of cost of time spent in travel, record keeping, and administration to that spent on nursing; a uniform system of accounting for use by visiting nurse associations and a basis for determining the "per visit cost."

The procedure of the committee is to gather material on the present practice of visiting nursing in a number of public health nursing agencies. These data will later be studied by the committee and will form the basis for their recommendations.

The general phases of public health nursing to be observed in each association involve a detailed schedule covering the facts of organization and administration will be filled in for each association by one of the nurse investigators. This schedule covers necessary details on the following points: For the city, population,

area, death rates, causes of death for last fiscal year; for the association, organization, board and committees; personnel, paid workers, students, substitutes, volunteers; administration, training new workers, conferences and other educational methods, supervision, record writing, hours, uniforms, transportation, publicity, quarters, policy regarding giving of relief; type of work, general visiting nursing, specialized service, general policy and type of service for each type of case; analysis of statistical material for last fiscal year, number of patients, number and classification of visits, diagnoses of patients, fees, sources of patients; information on cooperation or overlapping of service with other public health nursing agencies in the community and with other social agencies.

In addition to this information on organization and administration the nurse investigator is also obtaining first hand a knowledge of the nursing technic and type of records kept. In each association she is spending a day in the field with each of a carefully selected number of nurses. For each visit with each nurse she fills in a uniform schedule which gives a picture of that particular situation and the way it was handled. In each association she is also reading a uniformly selected sample of records and for

each record read fills in a schedule which will form the basis for a comparative evaluation of the content and use of records.

To supplement the information contained in the above schedules, each association is having all staff nurses keep a duplicate copy of their daily report sheets for a week. This material will afford a valuable basis for analysis of time involved in different types of visits, in transportation and in record writing and clerical work.

The staff members of the associations studied are also filling in personnel sheets which give educational background, professional training, previous experience, position on the staff and salary.

The investigators appointed to assist the committee in this study are: director of investigation, Almena Dawley; nurse investigators, Janet M. Geister, Theresa Kraker; accountants, Walter F. Derry, Lefa Nay.

The Henry Phipps Institute, Philadelphia, is sending out radio talks on health subjects every Tuesday evening. Dr. Charles J. Hatfield, executive director of the Institute, gave the first lecture with a preliminary address by Mrs. Arthur M. Dannenburg. Scheduled for future lectures are Dr. H. R. M. Landis, Dr. George Fetterolf, Dr. James M. Anders, Dr. George Morris Piersol, Dr. Samuel McClintock Hamill, and Dr. David Riesman.

Bertillon Methods for Sanitary Inspectors



Bertillon methods are now being used by the health department of Washington, D. C., in the collection of evidence of violation of sanitary laws. The photograph shows a physician and chemist in the Washington health office viewing paper cups which show clearly that they have been used twice by the soft drink establishment from which they were obtained.

Medical Social Service and the Physician

BY JACOB A. GOLDBERG, A.M., PH.D., DIRECTOR, COMMITTEE FOR HEALTH SERVICE AMONG JEWS, NEW YORK CITY.

MEDICAL social service dates back to 1905, when Dr. Richard C. Cabot organized the first medical social service department in this country in the out-patient department of the Massachusetts General Hospital. The reasons for the organization of this new branch of work were that the physician treating a patient could become acquainted with only certain phases of the mental and physical condition of the patient, and it was necessary to call in the trained social service worker to assist him in making a more accurate diagnosis and in rendering the prescribed treatment more effective. This new form of service was at first designed primarily for those who came to the out-patient department of the hospital. Since then the movement has spread to many of the general and other hospitals in the country, and the social service departments now serve both the ward and dispensary patients.

In every community there are large numbers of wage-earners and salaried people who prefer to go to the private office of a physician rather than to a dispensary. Also, there are those who for one reason or another enter private hospitals which do not maintain social service departments. Thus far, medical social service has not been extended to these groups of patients.

A clear understanding of this phase of the problem of treating the sick may be obtained from a consideration of the following statistics. According to the Medical Directory published by the Medical Society of the State of New York, there were, in 1921, 8,769 physicians in Greater New York, with 5,184 in Manhattan, 784 in the Bronx, 2,389 in Brooklyn, 324 in Queens, and 88 in Richmond. A study of the number of physicians on the staffs of hospitals, dispensaries, and clinics, has shown that in 1921 there were approximately four thousand one hundred physicians with such affiliations. It should further be noted that not more than two-thirds of all hospitals, dispensaries, and clinics in the city maintain social service departments and, when they do, these departments are usually for the exclusive service to the patients attending them. The effectiveness of the various hospital social service departments varies considerably, depending

upon the importance placed upon medical social service by the lay and medical boards; the training and experience of those in charge, and of their assistants; the funds available, etc.

The doors of social service departments are closed to all who seek and to those who render private medical service. Partially to meet this problem, the Committee for Health Service among Jews has advised physicians in Manhattan and the Bronx that the Committee is ready to serve as the medical social service agent and clearing house for their private patients in need of some form of medical social service. The monthly bulletin of the Eastern Medical Society contains the following notice. Similar notices have been mailed to members of other medical societies through the cooperation of the officers of these societies.

SOCIAL SERVICE FOR PRIVATE PATIENTS

Medical Social Service is today considered a most necessary element in hospital organization. Heretofore this form of service has been limited to those who were patients in hospitals. It has not been made available for private patients, especially for those under the care of physicians unaffiliated with hospitals. IF YOU HAVE PATIENTS IN NEED OF SOCIAL SERVICE OR ADVISE ALONG THOSE LINES, GIVE YOUR PATIENTS A LETTER TO: DR. JACOB A. GOLDBERG, Director Committee for Health Service among Jews, 356 Second Ave., N. Y. C. Absolutely no charge will be made to you or to your patient for this service. A written report of the action taken will be sent to you in every case.

Physicians have readily availed themselves of the services of the Committee. Within a few months, approximately two hundred patients have been referred for some form of service. It is expected that as the technic of this work is more fully developed and physicians come clearly to understand the nature of the cooperation offered, that a growing number of patients in need of some service will be referred for a study of their problems and the making of such social and other adjustments as may be found possible and necessary.

An adequate picture of the services rendered can best be portrayed by the citation of typical cases, as well as by an analysis of at least one hundred patients, their social and medical problems, the reasons for which they

were referred and how their problems were met.

Case 1.—Dr. S. referred Mrs. B. for convalescent care following an operation for appendicitis. Acting upon the diagnosis and recommendation of the physician, application for the patient was filed with a convalescent home, where patient was admitted within a few days.

Case 2.—Dr. W. referred a young woman of 19, suffering with pulmonary tuberculosis, the need being institutional care. Through one of the affiliated organizations of the Committee, the recommendation of the physician was fulfilled.

Case 3.—Dr. M. referred a young woman for the placing of her one year old infant in a boarding home. The husband had deserted and the wife wanted to return to the work she had been engaged in before her marriage. A suitable home was found for the infant.

Case 4.—Dr. A. referred a sixteen year old cardiac boy for institutional care. Members of the family were able and willing to pay for them, and arrangements were made for his admission to an institution for cardiacs.

Case 5.—Dr. F. sent an eighteen year old boy to the office of the Committee because he could neither get along at home nor at work. Upon examination by a psychiatrist, the boy was found to be a case of dementia praecox and he was placed under the care of a mental hygiene clinic and psychiatric social worker.

These cases are typical instances in which service was rendered to patients under the private care of a physician. An analysis of one hundred consecutive cases referred by sixty physicians for some form of service indicates a comparatively wide range of diagnosis.

Anxiety neurosis.	1	Indolent ulcer	1
Asthma	2	Locomotor ataxia.	1
Anemia	2	Lues, cerebro-spinal	1
Arteriosclerosis	1	Manic dep. inst.	2
Arthritis	1	Neurasthenia	12
Cardiac	12	Orthopedic	2
Carcinoma	4	Paralysis agitans.	1
Conjunctivitis	1	Paralysis, facial.	1
Dementia praecox.	3	Pneumonia	2
Duodenal ulcer.	1	Scurvy	1
Epilepsy	2	Syphilis	2
Gangrene of leg	1	Tuberculosis	14
General debility	19	Negative	5
General paralysis.	1		
Hemiplegia	2	Total	100

Cardiacs, general debility, neurasthenia and tuberculosis, stand out among the conditions found, their total being 57 per cent. This is probably indicative of the kind of cases in which physicians frequently need other than medical services to treat their patients, and to bring them to a state of physical and mental well-being as well as economic independence. Even though physicians generally realize the problems with which their

patients are faced in trying to adjust or readjust their lives to meet the accidents of sickness and death, they cannot in many instances help them because of an inadequate knowledge of the social agencies, their functions, etc., in the community in which they live. There are certain alternatives open to the physician in such cases. He can try to acquaint himself with the social agencies in his city and make his personal contacts with the executives and others; he can, as some physicians have already done, engage a trained social worker to help him in adjusting his private patients; or as is often the case, he may have to ignore all but the medical phases of his work. This is a regrettable thing, and it is in such and similar situations that organizations as the Committee for Health Service among Jews should extend and invite co-operation with physicians in the social care of the sick. Whichever method may be pursued, the modern physician realizes the need of some service supplementary to medical diagnosis and therapeutics.

The following table indicates the kind of medical social service which the physicians recommended as being needed by the 100 patients referred by them.

PATIENTS REFERRED FOR:

Boarding child	1
Convalescent care	27
Employment	12
Financial assistance	6
Further examination	16
Hospital care	28
Nursing care	1
Social adjustment	4
State Hospital admission	5
	<hr/> 100

A consideration of the reasons for which the 100 patients were referred presents a fairly complete cross-section of the several classes of service a medical social service agency is called upon to meet.

Boarding Children.—Arranging for the temporary boarding of children while the mother is ill, recuperating or attempting to become self-supporting is a form of service for which there is always a need. This particular instance is referred to above in a discussion of Case 3.

Convalescent Care.—There were twenty-seven patients who were referred for convalescent care following some severe illness or operation. To begin with, a word might be said regarding convalescent facilities for New York City patients. A survey made by the Public Health Committee of the New York Academy of Medicine, brought out the need of additional convalescent facilities and a better correlation of the available ac-

commodations. Certain types of conditions are fairly well provided for, while other types, such as nervous and borderline mental cases, are not adequately considered. A study of 3,236 case records selected at random from the files of the social service departments of a group of hospitals showed that in 908, or 30 per cent of the cases, there is a convalescent need. Convalescent care was obtained for practically every patient who was eligible for admission to a convalescent institution. Physicians occasionally referred patients for such care who were nervous or mental cases, or who had chronic physical ailments, thus rendering them ineligible for admission to nearly all convalescent homes serving New York City.

Employment.—There were eleven men and one woman referred for employment. In some cases it was possible to help them obtain such work as they could do; in other instances lack of cooperation and physical inability to work mitigated against any immediate solution of the employment problem. One patient was referred by a physician who advised him that he needed a certain out-door position in the classified civil service of the city. The patient was not a citizen, knew little English, and had absolutely no qualifications for the position in question. In other cases it was necessary to convince patients that due to their chronic state of ill-health their earning power had decreased and they would be compelled to take less remunerative work.

Financial Assistance.—In the few instances where application was made for financial assistance, a medical report was at once communicated to the relief organization for their investigation and further action. Those found to be in actual need of such help were aided.

Further Examination.—Occasionally a private practitioner has patients regarding whose diagnosis he is not sure, because he specializes in some branch of medicine, or because the patients may need to be x-rayed or to have various tests made for which they are unable to pay. Sixteen such patients were referred to the Committee and the recommendations of the physicians were carried out in every case.

Hospital Care.—The problem of the physician unaffiliated with a hospital is further emphasized by the fact that twenty-eight out of a hundred patients were referred for hospital care. Some were general hospital cases, while

about 50 per cent were chronic cases in need of a long period of hospitalization. While all patients could have been sent by their physicians to a city institution, and their admission practically assured, the request was as a rule for admission to some semi-private institution as the Montefiore or Mt. Sinai Hospital. Application was made for every eligible case, immediate arrangement being successfully made for all acute or semi-acute sufferers.

Nursing Care.—One patient was referred as being in need of nursing care and such was arranged for through the visiting nurses' organization.

Social Adjustment.—The four persons referred for some form of social adjustment other than employment were in each case either mental or nervous problems. One was a neurotic boy of seven years who was unmanageable at home as well as at school. The parents were in comfortable financial circumstances and arrangements were made to have the lad enrolled in a private school for problem children. Another patient was a boy of fourteen who showed certain anti-social instincts, was troublesome at home and dull at school. Application was filed for his admission to the George Junior Republic, the parents to pay for his care. A young woman of eighteen years, and a recent arrival in this country, was a psycho-neurotic who needed some one to be interested in her and to help her adjust herself to her new environment. She was placed in touch with an immigrant aid organization. The fourth patient was a girl of 16 years, who could not get along at home, and was otherwise maladjusted.

State Hospital Admission.—Relatives of mental cases in need of institutional care were advised regarding the care and treatment at state hospitals, as well as how to have patients admitted to the hospitals.

Some of the activities of the Committee for Health Service among Jews have been sufficiently portrayed in the preceding pages to indicate the need of some such agency in the larger cities of the country. Closer cooperation between physicians, hospitals, convalescent homes and the various social agencies in communities is essential, so that the sick may be more effectively served by the existing organizations. In smaller cities and towns, some existing agency should offer the various forms of co-operation to local physicians, if such is not already being done.

National Versus State Building Codes*

By SIDNEY J. WILLIAMS, CHIEF ENGINEER, NATIONAL SAFETY COUNCIL, CHICAGO, FORMERLY CHIEF OF BUILDING INSPECTION DEPARTMENT, INDUSTRIAL COMMISSION OF WISCONSIN.

A COMPREHENSIVE national building code, suitable for enforcement in New York and in Tulsa, in Sacramento and in Boston, is impracticable. In those parts of a building code which can be based on definite scientific fact, national uniformity is possible and is much to be desired. But there are other parts where scientific knowledge is lacking or uncertain; where regulations must be largely based on judgment; where the local legislator and jurist and the property owner himself think their judgment is as good as the engineer's; where the collective judgment differs in different sections and communities; where the actual needs of the community differ; and where enforcement of a uniform standard is out of the question.

Some of the objects sought by the advocates of a comprehensive national building code can be secured through the medium of state codes properly formulated and administered.

The need for uniform building codes, either state or national, has been long discussed by engineers and architects, with much caustic comment on the absurdity of conflicting city regulations. With all this agitation, there has been little substantial progress, largely because engineers and architects have not realized that the job is a diplomatic, quite as much as a technical one. The engineer is seldom a good diplomat, almost never a good politician. Yet often the politician comes closer than the engineer to the essential facts of life in a democratic commonwealth. Nowadays, engineers are gradually waking up to their opportunities as leaders of thought and action in non-technical fields, so there is hope that they may soon exercise such leadership toward better building regulation.

As soon as we analyze the building code job into its diplomatic and technical elements we find that the "versus" in our subject indicates not conflict but correlation.

Don't "Damn the Public"

Building regulation obviously consists of two things: first, formulating the code; and second, enforcing it. The latter is almost entirely an administrative or diplomatic job,

and the former is partly so. The problem that will be met with in administration must be anticipated when the code is formulated or the code is likely to be a failure. A wise mother once said "I don't want my children to disobey me, so I try not to ask them to do anything which I know they very much dislike to do." In a government which is not paternalistic, it is even more necessary for state or city officials not to try to make the public do something to which a large part of it will strongly object. Any such attempt generally results either in the administrative department quietly backing down and not enforcing the law, the legislature repealing the law, or the courts throwing it out or declining to convict under it because it is unreasonable. Any one of these things is very bad, much worse than successful administration of a law somewhat less "ideal" from the technical standpoint.

Uniform Structural Needs

A building code has for its purpose the protection of life, limb, and property. Its provisions may be grouped under four general heads: (1) Structural provisions intended to prevent collapse or excessive deterioration; (2) fire prevention and protection including exits and other safeguards for the occupants in case of fire; (3) sanitary requirements on such subjects as ventilation and lighting, intended to protect the health of the occupants; (4) prevention of personal injury during normal use of the building, such as hand rails, avoidance of slippery floors, protection against breakage of skylights. Most building codes do not contain enough on these subjects. Elevator regulations, if included in the building code, fall in this group.

City building codes generally also contain fragmentary provisions for preventing accidents to building workmen, as such as temporary floors on steel skeleton buildings. The treatment is almost always inadequate; the subject is really a separate one and should be covered in a separate code or law.

The formulation of structural requirements, allowable stresses for various materials, minimum thickness of walls and other dimensions, is definitely an engineering job which can be standardized. A steel bar is not 12

per cent stronger in Chicago than it is in Cleveland. Dwelling house walls in Philadelphia need not be twelve inches thick if eight inch walls are satisfactory in other cities. Mr. Ira H. Woolson and his committee have done a splendid piece of work in producing their report on "Recommended Minimum Requirements for Small Dwelling Construction," which reflects the best up-to-date technical knowledge and experience on structural requirements that are really necessary for safety and fire protection. This committee's technical achievement is equally by its wisdom in confining its first report to this comparatively non-controversial field. With the powerful backing of the U. S. Department of Commerce and, presumably, the support of the technical associations ably represented on the committee, this report should go a long way toward securing uniform reasonable city regulations on this part of the subject. It is much to be hoped that this committee or some similar committee will now go further and prepare standard structural provisions for larger buildings as well, which could be adopted by any city or state as the structural section of its building code.

The second subject included in building codes is fire protection including safety to life. Some parts of this field are now agreed on. The construction of chimneys and the protection of heating apparatus are covered in the recommendations of Mr. Woolson's committee and are not likely to arouse much antagonism. They might well be adopted by any city or state.

Safe Exits a Problem

Other elements of fire protection are more difficult and more controversial. The provision of proper exits to insure safety for the occupants in case of fire is a very complicated problem. It is easy to say, as some building codes do, that there shall be one stairway for every so many thousand feet of floor area. This simple solution is totally inaccurate as if one should say that all reinforced concrete must contain one per cent of steel.

The design of reinforced concrete structures is a science and art in itself and to design exit facilities that will be safe without being unreasonably expensive is almost as difficult.

*Presented at joint meeting Engineering Section of National Safety Council and American Society of Safety Engineers, New York, February 16, 1923.

We have to guess at some of the fundamental data. We cannot conduct laboratory experiments such as constructing a building with certain exits, putting a thousand people into the building, setting fire to it, and observing whether the people get out alive. True, we are burning down buildings every day, most of them contain people, some of the people do not get out alive, and then we make investigations and try to determine what was the matter and what improvements would have prevented the disaster; but these unplanned experiments are not under laboratory control and the conclusions drawn from them are often disputed.

We have, of course, some accumulation of data in this field, on which it should be possible to base a fairly accurate standard, but we must face the fact that the standard is a complicated one. For about ten years the National Fire Protection Association has had a committee on safety to life. This committee has done much valuable work, chiefly on exit requirements; recently it has been enlarged and has become a sectional committee under American Engineering Standards Committee rules to formulate a code on building exits. The standard which it is working out will represent the best available experience and judgment.

Ready Made Fire Zones

Other phases of fire protection are almost as fundamental and even more controversial. Perhaps one reason is that very few owners want their buildings to collapse because of structural weakness or to be fire traps because of insufficient exits, but many owners prefer to run some risk of property loss by fire, rather than go to the expense of fire resistive construction. Fire protection is largely a relative matter. It is not only excusable but it is economically right to take more chances of fire in building a general store in a frontier town than on Manhattan Island. As long as the owner can buy insurance on a combustible building, he will often choose to build such a building and will object most strenuously if he is not permitted to, unless he can be shown that it would constitute a serious conflagration hazard to adjoining property; and the legislatures and the courts are likely to take the same view, especially in the newer parts of the country. Therefore, it seems quite out of the question to have any national standard on the limits of combustible construction.

One suggestion has been made that

seems a sensible one. Almost every city has "fire limits" within which special requirements are imposed. Let us assume a series of two or three or half a dozen zones of fire hazard, the first representing the Wall Street district of New York, the last representing the cross-roads settlement in Kansas. Let the experts determine what sorts and sizes of buildings should be permitted in each zone. Then let each community zone itself and let fire insurance rates be fixed accordingly. In other words, extend into fire protection the same zoning idea that is becoming so generally used in regulating the height and congestion of buildings from the standpoint of health and general welfare.

In the field of ventilation and sanitation we are far from having a logical standard. Such standards as we have are empirical, without scientific basis. Ventilating engineers and physicians frankly admit that they do not yet possess the fundamental criteria for determining what good ventilation is. Investigations and researches are being made and we may hope, within a few years, to have as much scientific knowledge of good ventilation as the medieval architect had regarding the structural design of a Gothic cathedral. Meanwhile the best we can do is to strive for some sort of agreement or standard based on the best guesses of the best experts. Some of the codes included in the American Engineering Standards Committee program will be of help in this field.

The provisions of the average building code relating directly to accident prevention are, as I have said, very few and of comparatively minor importance. These subjects, too, are being dealt with in some of the American Engineering Standards Committee safety codes, and national standards thereon will be forthcoming in due course.

This survey of the situation proves the opening statement that a complete national building code is, to say the least, impracticable, although we should strive for, and may reasonably hope for, a considerable degree of uniformity on subjects where we have sound scientific knowledge and where consequently we can secure substantial agreement from technical experts.

If every city in the country were to adopt tomorrow the best possible building code, a large percentage of the buildings in the country would still remain without any regulation whatsoever. This is where the state building code comes in. The purpose

of a state building code is, first, to help in bringing about uniformity among the various cities in the state; and, second, to furnish protection to the people living in communities having no local regulation at all.

The relation between national standards and a state code is this: The national standards, formulated by the best experts of the land, should reflect the most accurate, most complete, and most up-to-date technical information available. The state code should take these standards and adapt them to local conditions and administrative exigencies. The state building code job, both formulation and administration, is almost entirely a diplomatic one, assuming, of course, that the officials in charge have enough technical knowledge to understand and apply the regulations that they are administering.

Function of State Codes

The relation between a state building code and the codes of municipalities within the state is most important and delicate. The authority of the state is superior to that of the city, but it does not follow that a state law can be enforced in a given city if it is obnoxious to both the inhabitants and the city officials. The state is the mother and the cities are her children, but, like the wise mother I have already mentioned, the state should not ask her children to do things that they too violently object to. Better say nothing about superior authority, but "sell" the city officials as far as possible on the newer and better standard, cheerfully accept a compromise, and then conduct a patient campaign of education among city officials and people alike looking toward a better standard later.

This implies a great amount of elasticity in the administration of the state code. That is one reason why there have been few, if any, examples of success with building regulations passed by a state legislature. A statute law is not elastic but rigid. When once passed it can only be amended when the legislature meets again, and sometimes not even then. Therefore property owners and even engineers and architects are, not without reason, afraid of a state building code passed by legislative enactment. If such a code is proposed, they scrutinize it most critically; they look for any little point that might, if rigidly enforced, cause them trouble or unreasonable expense; if their suggestions are not adopted, they oppose the entire code. With one interest objecting to this provision,

and another to that, the total opposition is more than enough to kill the code. Several states have spent thousands upon thousands of dollars and many architects and engineers have given days upon days of their time without recompense in the formulation of a building code to be presented to the legislature, and year after year the codes have failed of enactment, for this reason.

Then how can a state building code be secured? In exactly the same way that most of the progressive industrial states have secured regulations covering elevators, or electrical equipment, or the safeguarding of machinery, through the medium of orders formulated and enforced by an administrative commission. One example is found in Wisconsin where a code covering all buildings except one and two family houses was adopted ten years ago by the Industrial Commission and has been enforced by it ever since, with a fair degree of success. A brief account of the procedure followed may be of interest.

First the law was amended so as to extend the commission's authority to cover buildings used or frequented by the public or by three or more tenants, as well as places of employment. When this amendment was passed, probably few members of the legislature and still fewer of the general population realized that it meant a state building code. The commission took care that this realization should not come too violently. Had the commission adopted and tried to enforce a building code like that of New York or Chicago, the result would have been a storm of protest and the next legislature would undoubtedly have repealed the amendment. What the commission did was to formulate a code as simple and brief as possible, that would correct the most glaring life and health hazards then existing. Great care was taken to consult all architects and engineers as well as city officials and to accept their majority opinion as to what could reasonably be enforced. In the one city then having a real building code of its own the local officials were assured that the commission did not intend to override or duplicate their local inspection.

At first the commission did not require, but only suggested, the submission of plans for approval. This is an example of the careful approach by which the support of engineers, architects, and builders was gradually secured. Later a requirement for the submission of plans was

added, without opposition. At the same time, the cities were encouraged to adopt building ordinances of their own and appoint local inspectors. The state commission delegated its work to these local men, keeping in touch with them and assisting them.

Undoubtedly this ten years of state building regulation has raised the standard of building in the state considerably and many thousands of buildings constructed within that time are much better and safer places to live and work in than they would have been without the code. Meanwhile, other states which ten years ago were talking about a building code, are still talking about it.

To summarize:

(1) In any discussion of building codes it must be remembered that the diplomatic job of enforcing the code is quite as important and generally more difficult than the technical job of determining an ideal standard. (2) The technical job of determining ideal standards can best be handled on a national basis, by representative committees of experts. (3) A complete national standard building code probably cannot be formulated at this time, but many sub-divisions of the subject can and should also be so standardized; several such projects

are already under way. (4) Every effort should be made to have local ordinances amended to conform to these national standards and to have such standards adopted by municipalities which now have no building codes.

(5) State building codes are very desirable, to help bring about uniformity and to cover communities having no local regulation. (6) The administration of state codes must be carefully handled, and the desire of all cities for self government should be respected. (7) From the practical administrative standpoint it is better if the state code is considerably shorter and simpler than the usual city code. A short simple code is generally sufficient to take care of the smaller towns and the larger ones can adopt more complete regulations of their own. (8) It is difficult and probably undesirable to have a detailed state building code adopted by the legislature. It is quite as effective, and much more practicable to give an administrative commission authority to adopt and administer a code. The law should of course provide proper safeguards, such as the use of a technical advisory committee and the right of appeal to the courts in case the commission should exercise its authority unreasonably.

Good Roads and Health

THE interdependence between general community improvement and community hygiene has been frequently noted but it is all the more apparent in those situations in which conditions are backward or primitive.

The Isthmus of Panama represents one of the oldest civilizations in the new world and, in the area occupied by the Panama Canal and its immediate environs, it has served as a great international highway for centuries. That portion of the Isthmus has therefore been kept in touch with the outside world and has been correspondingly affected by the progress of other peoples. Communication with all portions of the Republic remained very difficult however, until the trans-isthmian railway was completed in 1855. From that date the terminal cities of Aspinwall (now Colon) and Panama began to advance. With this exception, travel in other parts of the Republic has remained exceedingly difficult until very recently when the Junta de Caminos (Central Road Committee) launched its road building program under the aegis of Dr. Beli-

sario Poras, the president of Panama. This work has proceeded rapidly and roads of good engineering design and construction have been built.

The first stretch completed, connected the City of Panama with Tapio, which formerly was a little palm-thatched village sprawling in filth along a road which was a bog eight months in the year and a series of sunbaked corrugations in the dry season. The policy of maintaining the edges of the new road free of vegetation was adopted and within a short time, the yards of the adjacent houses began to take on a neater appearance which has progressively improved. Here was the first step in community improvement and pride of appearance taking place through imitation. The new road made it possible for the villagers to transport their produce easily to the capital and, in consequence, an improvement in economic conditions has followed, as evidenced by an increasing prevalence of shoes which in turn without doubt will serve to reduce hookworm disease.

In Los Santos province, a road has been practically completed, connecting

Mensabé, Las Tablas and Chitré. All of these places were very backward and insanitary only a few months ago. Communication was accomplished by saddle horses or ox carts and during the season of heavy rains the movement of persons and freight was practically impossible. As a result these towns, which were old when New York was first settled, stagnated by reason of their virtual isolation from the outside world, the more energetic youths of the community leaving them for residence elsewhere. Las Tablas, which a year ago was anything but sanitary, has recently built a sanitary abattoir and market and is rapidly being transformed into a clean little town and the community conscience has been quickened to other improvements. Chitré now has a good little hospital and is approaching its public health problems with spirit.

Another road is being built to connect Aguadulce, Santiago, and Natá; in fact, it is almost completed. Aguadulce has recently created a small but adequate hospital and in cooperation with Pocrí, a neighboring village, has recently erected a sanitary abattoir. Thus the local Chauvanistic spirit is giving way to the modern spirit of cooperation. The new road to the Port of Aguadulce has resulted in improved steamship service and large quantities of fruit and farm produce for which there was formerly a scant market are now being shipped to Panama. Until this year, turkeys in Aguadulce never cost more than three pesos (\$1.50) but this year they sell for six pesos (\$3.00) and there is a ready market for them, since buyers can get them readily to the Port and into Panama. Aguadulce is now arranging a loan from the central government in order to make a number of municipal improvements, including a modern water supply.

Santiago and Natá will soon be reached by the road and a similar set of improvements may be anticipated in them. It will be particularly interesting to note the changes in Natá. This is said to be the oldest town on the Isthmus of Panama and occupies the site of an Indian village of great antiquity on a fertile plain of great beauty. Originally known as Natá de los Caballeros (Nata of the Gentlemen), it has been shut off from the outside world by the Rio Chico which is uncertainly passable for at least eight months in every year. Stagnation and degeneration were inevitable under such conditions. Many of the fields are idle, the public water supply is still brought from the river (about a kilometer) on the heads of

women and conditions in the so-called hospital are truly mediaeval. Even the fine old church, in which it is alleged there is a Velasquez, is beginning to fall into decay. But with the completion of the road and the bridge across the Rio Chico, an easy communication with the Port of Aguadulce will be created and this five-century old village will undergo in all probability an enormous economic and therefore sanitary advance. A benign circle of increased health and increased wealth will thus obtain.

It may be impertinent to add that many sanitarians are apt to ascribe to the science of Hygeia victories in which it only played a part. Sanitary advance is only a part of general community advancement. Sanitation may try to head the procession, but the community cannot follow unless there is a simultaneous economic improvement. Public health cannot stalk ahead as a solitary figure. It must walk side-by-side with increased earnings, with increased education, with better markets, and, above all, with better means of commercial intercourse. Sometimes we are downcast because the community does not respond more quickly to our efforts for sanitary and hygienic advancement. If we will remember that these keep pace with the dinner-pail and the bank account, we may be more patient and less critical. A people which is backward economically will be backward hygienically and to improve either, one must improve both. The good road is at once the most certain and the most rapid means of accomplishing this.

Progress of the Framingham Demonstration

The Framingham tuberculosis rate, as indicated by the table below, is considerably higher than the very low rate of 1921.

Rate per 100,000

Pre-Demonstration Decade	
1907-1906	121.0
1917	97.5
1918	84.7
1919	90.2
1920	64.5
1921	40.1
1922	67.2

Variations from year to year must be expected in so small a population group. The average rate for 1921 and 1922 is, however, only 53.6, a reduction of 55 per cent below the pre-demonstration average. The group of control towns, used as a norm in previous years, show an average rate of 98.0 for the two years 1921 and 1922, a reduction of only 22 per cent below their 1907-1916 rate of 125.9.

The number of cases of tuberculosis reported in Framingham rose from an average of 13 cases a year for the pre-demonstration period to 45 in 1919 and has since fallen steadily to 24 in 1922. It is also particularly encouraging to note that of these 24 cases 16 were in an early stage.

The British-American Nursing Home, whose establishment was made possible largely through the efforts of Keith Merrill, the American Consul, and Mrs. Merrill was recently opened in Madrid. The Nursing Home, the first of its kind in Spain has modern equipment and a staff of specially trained nurses.

After-History of Tuberculosis Patients

Year		Notified as of Previous Years of Primary Tuberculosis														Notified as "Other Forms" of Tuberculosis
		1912	1913	1914	1915	1916	1917	1918	1919	1920	1921	1922	Attended Dispensary	Not attended Dispensary	Visited by Dispensary nurse	
1912*	97.	306	116	49	44	32	19	17	9	9	3	140	147	...	1029	...
1913	786	...	407	98	34	37	20	13	6	9	10	243	44	1	804	8
1914	665	...	328	95	29	14	43	12	6	9	186	62	...	...	667	2
1915	612	...	...	...	336	74	42	14	17	9	5	125	68	...	630	8
1916	642	...	...	...	...	356	93	35	18	8	10	167	52	13	652	10
1917	540	...	...	...	...	...	344	97	23	14	14	174	32	15	602	12
1918	552	...	...	...	...	...	...	362	66	32	30	176	29	23	508	5
1919	519	...	...	...	...	...	...	...	390	79	26	182	27	18	621	3
1920	593	...	...	...	...	...	...	...	...	303	77	264	31	22	597	4
1921	532	...	...	...	...	...	...	...	...	...	200	254	33	46	533	1
Total	6473	354	323	375	409	416	431	391	342	371	383	1927	728	135	6504	74

*Included in the gross total of 1-10 for the year 1912 40 cases notified prior to that year.

The annual report of the Medical Officer of Health of Newcastle-upon-Tyne for the 1921 contains the very interesting table below from which one may gain a fairly complete view of the after history of reported cases of tuberculosis. It appears that practically every year more than a third of the cases died in the year they were originally reported. About one eighth more died in the second year and for those who did not die in the second year the prognosis was apparently good. Other statistical tables in the report indicate that the average duration of illness for fatal cases was 31.6 months so that the patients dying in the year of report must on the average have been ill for nearly eighteen months before notification.

Pasteurization Minimizes Milk Borne Epidemics*

But Health Officer Must Enforce Rigid Sanitary Rules to Keep Supply Clean

By THOMAS G. HULL, PH.D., CHIEF, DIVISION OF LABORATORIES, ILLINOIS DEPARTMENT OF PUBLIC HEALTH, SPRINGFIELD, ILL.

THE Illinois Department of Public Health is vitally interested in milk because of its food value and the necessity of an adequate supply to all communities of the state. The department is emphasizing the necessity of a safe milk supply, however, because of disastrous accidents which have repeatedly taken place in the past.

Several factors are to be considered in judging milk. It should have sufficient cream, at least to come within the law. Undue emphasis can be placed on this factor from a public health standpoint, however, because no epidemics, no disease, no deaths have ever been traced to a deficiency of butter fat. This is entirely an economic problem.

Next, milk should be sweet when delivered to the consumer. Milk is rendered sour by the growth of bacteria which produce lactic acid. The bacterial count, which is in the final analysis only an indication of the keeping qualities of the milk, does not necessarily indicate either pollution with dirt or contamination with disease bacteria. For infant feeding, however, it is absolutely essential that milk be as sweet and fresh as possible, for the digestive tract of the infant is overwhelmed by mere numbers of bacteria alone. The so-called "summer diarrheas" of babies are often the result of a milk that has not been kept sufficiently cold to prevent rapid bacterial growth.

Dirty milk is never excusable. There is a peculiar psychology about the presence of dirt in milk. A farmer may fly into a rage or become nauseated on finding a hair from the clean head of his wife in his food. He will go directly to the stable, however, to do his milking, straining out of the milk with a piece of cheese cloth, junks of cow manure, cow hair, flies, bugs, straw, dandruff, and other dirt. Then he drinks copiously of this product, bragging about his wonderful milk supply. Dirt in milk may be of significance from two standpoints, the esthetic, whereby we demand that milk be as free from such material as our other foods; the other, that of

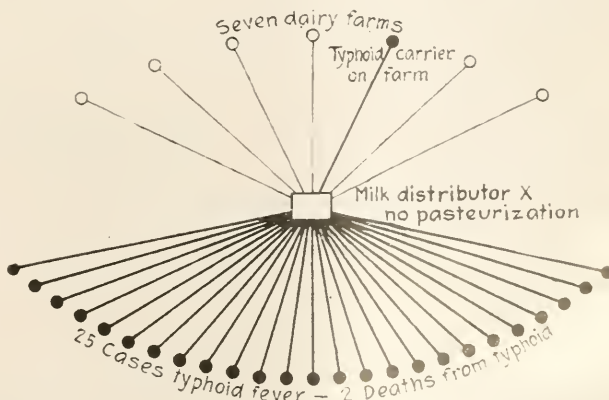
public health where we insist that cow manure containing dangerous tubercle bacilli, or human feces carrying the deadly typhoid germ, be absolutely barred from getting into the milk.

This leads us directly to our last point—milk must be safe. It must produce no diseases, no epidemics, no deaths among those who drink it. The Illinois state department of public health is vitally concerned in this matter for too often local communities give no heed to advice and warnings regarding their milk supplies till after the epidemic has struck, when in desperation they call the state's help.

There are in our files, record of more than four hundred epidemics with thousands of cases of typhoid fever traced directly to contaminated milk. There are innumerable other instances of which we have no record for they have been so common that only part of them have been reported in the scientific literature. It is only necessary to cite a few outbreaks that have occurred in Illinois. In one of the state institutions in Morgan county typhoid fever was becoming more and more prevalent till about a year ago investigation showed the milkman to be a typhoid carrier. With his removal, cases of typhoid fever ceased to occur. In Carroll county, one of the small towns was continu-

ally reporting typhoid fever. Suspicion pointed to a "three cow" dairyman who had had typhoid fever forty-three years before. Laboratory examination of his stools showed 95 per cent of the organisms developing to be typhoid bacilli. In Bond county, twenty cases of typhoid fever with several deaths occurred in one community over a period of six months. Investigation showed that typhoid fever existed on two farms from which the milk came and that accidental contamination had occurred from time to time. In Henry county, twenty-five cases of typhoid and two deaths occurred within a few weeks. The dairyman whose milk was responsible for the epidemic purchased milk from seven farms, distributing it to his customers without pasteurization. On one of the farms was a typhoid carrier, detected by laboratory tests, who had infected the milk. Incidentally, the dairyman X not only lost every dollar he had because his business was ruined, but he almost lost his life, contracting typhoid fever along with his customers.

An incident showing the efficacy of pasteurization in blocking contagion may be cited. In the northern part of the state on one of the farms there occurred several cases of what was termed "summer flu,"—one after an-



Milk distributor X bought his milk from seven farms distributing it without pasteurization. On one of the farms was a typhoid carrier who infected milk with the result that twenty-five cases of typhoid fever and two deaths occurred. Pasteurization would have prevented this epidemic.

*Read at Streator, Ill., November 9, 1922.

other of the family contracting the strange malady. The true nature of the disease was not ascertained till one of the sons died when a diagnosis of typhoid fever was made. During all this time milk from the farm was being shipped as usual. A small amount of milk went to a nearby village where it was consumed raw by a family of three persons. All of them contracted typhoid fever. The remainder of the milk was shipped to Chicago where it was pasteurized. No evidence of milk-borne typhoid fever appeared, because all the typhoid germs had been killed in the process of pasteurization. In Chicago, from 1911 to 1916, with only part of the milk pasteurized, thirteen epidemics of typhoid fever occurred that were traced directly to infected milk; from 1916 to 1922, with compulsory and efficient pasteurization, there is no record of a milk-borne typhoid epidemic.

Records are filed in the department of hundreds of epidemics of other diseases,—diphtheria, scarlet fever, and streptococcus sore throat traced directly to infected milk with the same story of infection often unsuspected by the farmer or dairyman himself till it was too late and the milk had been sold and consumed without proper pasteurization. In Chicago, in 1912, there occurred an epidemic of streptococcus sore throat estimated at 10,000 cases. At that time pasteurization of milk was not compulsory, nor was there any check on the plants pretending to pasteurize. At Michael Reese hospital where milk from the infected supply was used, a large number of cases occurred including nurses and interns. Milk for the children's ward of the institution was

pasteurized at the hospital as a matter of routine. The result was that not a single case of streptococcus sore throat appeared among the seventy children there.

Poor Milk Child Menace

The danger to infants and children of using a poor milk supply is well known. There are two factors involved:—the presence of disease bacteria and enormous numbers of other bacteria, not necessarily disease-producing in themselves, but which overwhelm the digestive tract of the infant, bringing on digestive disturbances. In the summer time, when the weather is hot and ice difficult to obtain, bringing in sufficient quantities, infant diarrhea due to bad milk is especially prevalent. In New York City Nathan Straus began the distribution of pasteurized milk in 1892. The summer death rate (June, July and August) of infants then stood at 136.4 per thousand. Fifteen years later, with the extension of milk stations and the increase in the use of pasteurized milk, the summer death rate had been decreased to 62.7 per thousand. Another striking incident occurred at Randall's Island in New York Harbor. At a children's institution there before the days of general pasteurization the death rate was very high, being 41.8 per cent for the years 1895, 1896, and 1897. The milk used in the institution came from a herd pastured on the island. In 1898 a pasteurizing plant was installed, no other hygienic measures being instituted. Immediately the death rate was cut in half and for the next seven years lay at 21.7 per cent. Usually the opponents of pasteurization object to the process

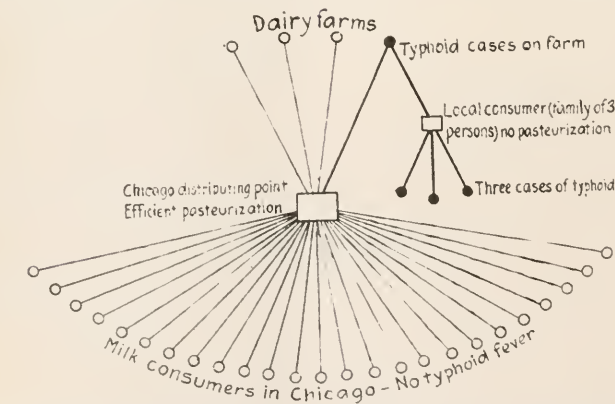
for the sake of the children. As a matter of fact, it is the children who require pasteurized milk and who suffer most when fed ordinary raw market milk.

In milk borne tuberculosis the condition is dependent not so much on healthy individuals handling the milk as on healthy dairy cattle. Milk may become infected with tubercle bacilli in two ways. When a cow has tuberculosis of the udder, the milk will contain millions of virulent tubercle bacilli. In tuberculosis of the lungs, the cow coughs up material but instead of expectorating it, swallows it and passes it out in the manure. The careless milkman gets some of this cow manure into the milk, thus contaminating it with tubercle bacilli. Ordinarily, market milk is infected with the germs of tuberculosis in about 10 per cent of the samples. In New York City some years ago, 16 per cent of the milk was so infected; in Washington, 6.7 per cent; and in Chicago, 10.5 per cent. Recently a study was made in New Haven, Conn., where 50 per cent of the milk was found to harbor sufficient tubercle bacilli to infect guinea pigs with tuberculosis. Fortunately, all this milk was pasteurized, after which it was impossible to infect guinea pigs, all the disease germs having been destroyed. Recently, a specimen of milk from one of the herds supplying milk to Streator, Ill., was brought to the laboratory of the state department of public health. A single drop showed innumerable tubercle bacilli, as many as twenty organisms in one microscopic field.

Children suffer most from bovine tuberculosis. In a study in New York City, among adults afflicted with tuberculosis, only about one per cent showed the bovine type of disease while among children suffering from tuberculosis, more than 25 per cent of the cases were due to the bovine tubercle bacillus.

Considerable misconception seems to prevail in some localities over the object of pasteurization in that it is to be made a substitute for tuberculosis eradication in cattle. This is not true. Pasteurization can never be made a substitute for tuberculin testing, neither can tuberculin testing be made a substitute for pasteurization. The two must go together. The state department of public health is solidly back of the state and federal departments of agriculture in their campaign for tuberculosis eradication among dairy cattle.

Opponents of pasteurization further



Several cases of typhoid fever occurred on a dairy farm. Some of the milk was shipped to a nearby community where it was consumed raw by a family of three persons all of whom contracted typhoid fever. The remainder of the milk was shipped to Chicago where it was pasteurized. No typhoid resulted.

claim that the process destroys the food value of milk. This is true to the extent that the so-called "vitamin C,"—the substance which prevents scurvy,—is destroyed by the heat required in pasteurization. Not all milk contains this substance, however, which depends upon the feed of the cow. Investigators in the United States Public Health Service have shown that even expensive certified milk cannot always be relied upon to contain vitamin C but that orange juice or other fruit juice should be added to the infant's diet in all instances. The other food properties of the milk,—the growth promoting substances, fat, salts, sugar, protein,—are in no way impaired by pasteurization.

Clean Milk Imperative Also

Another criticism of pasteurization is that it is a substitute for cleanliness and that dairymen use it to cover up their dirty habits. This is a matter for each local community to solve and is in the hands of your local health officer. Milk unfit for human consumption must never be put on the market in the form of a pasteurized product. An efficient inspection service can easily take care of the problem.

It is also claimed that pasteurization increases the cost of milk. In answer to this, the case of Quincy, Illinois, may be cited. Here a number of raw milk dealers organized for self preservation, a company was formed, stock sold, a pasteurization plant built. This milk is now being retailed to the consumer for the same price as formerly while the farmer is getting the highest price in the state for his milk.

"Certified" milk is a copyrighted name and can be used only by permission of a medical milk commission which "certifies" to the public the suitability of certain milk for infant feeding. Such elaborate precautions are required in the production of such milk, however,—frequent veterinary examination of cattle and medical examination of milkers and helpers,—that the cost is usually 25 to 30 cents a quart. Even then the certified milk is not always safe, contamination with disease organisms sometimes occurring. Recently, in Chicago, a little girl died of streptococcus sore throat infection contracted from certified milk.

It is unnecessary to go into the details of the process of pasteurization. There are various methods and modifications but any machine that will hold the milk for thirty minutes at 142° F. to 145° F. is satisfactory. It has been found by experiment that the disease bacteria such as the

typhoid bacillus and streptococcus are killed in a much shorter time,—ten to twenty minutes at 140° F. The extra time and extra temperature are given as factors of safety. From 95 to 98 per cent of the lactic acid bacteria are killed but some remain so that the milk will eventually sour normally, though much more slowly.

A proposed milk ordinance has been

drawn up with the cooperation of the state department of public health, the state department of agriculture, the University of Illinois, some twenty municipal health departments in the state and a larger number of representative milk producers and milk dealers which if passed by municipalities will insure the absence of milk borne epidemics.

A Tuberculosis Program

BY DONALD B. ARMSTRONG, M.D., SECRETARY, MILBANK FUND. TECHNICAL BOARD, NEW YORK CITY.

IN CONNECTION with the Health and Tuberculosis Demonstration plans of the Milbank Memorial Fund it has seemed worth while to attempt to outline a fairly comprehensive, though somewhat hypothetical tuberculosis program. Such a program aims to be of value in suggesting activities in the proposed demonstration units, and may also serve as an underlying basis against which to contrast the relatively inadequate and varying programs as they stand today in other communities. Obviously, such a program very nearly approximates a thorough-going general health plan.

It is generally assumed by tuberculosis and health workers that there may have been in the last few decades a more or less natural or normal decrease in the tuberculosis mortality rate, as a result of social and possibly biological factors of an uncontrollable character. It also seems to be a reasonable assumption, or perhaps conclusion from available data, that this natural decrease has been accelerated by certain special and accessory measures. From this point of view Dr. Haven Emerson has recently developed a classification of the influences at work somewhat along the following lines:

(1) Specific measures, such as medical examinations, milk pasteurization, and hospitalizations.

(2) General accessory measures, such as infant welfare work, and personal hygiene education.

(3) Accidental measures, such as changes in race stocks or alterations in economic conditions.

From the point of view of the rational use of these influences, as they may be worked into a practical program, there has been attempted a redistribution of the factors, still on a theoretical and hypothetical basis, but in line with the logical utilization of the measures involved in practical work.

Space does not permit of anything more than the briefest itemization.

(I) Measures against tuberculosis infection: (1) Milk pasteurization and tuberculin testing of cattle. (2) Meat inspection. (3) Fly control. (4) The elimination of common utensils and the proper cleansing of eating utensils. (5) General respiratory hygiene, including sputum control. (6) Control of open cases, protection of infants from tuberculous mothers, hospitalization, etc. (7) Personal hygiene of the defensive type—educational measures to eliminate the spread of infection. (8) Housing, less congestion, decreased contact, etc.

(II) Measures against disease:

A.—To increase resistance: (1) Infant hygiene—breast feeding, nutrition, etc. (2) Pre-school work—nutrition, elimination of other diseases, and defect removal. (3) School hygiene—defect removal, disease control, nutrition, open air rooms, camps, preventoria, school sanitation, and personal hygiene. (4) Industrial hygiene—improved working conditions, personal hygiene, education, etc. (5) Improved home living conditions—the equipment for cleanliness and hygiene, such as light, air, bathing facilities, etc. (6) General personal hygiene—especially of the creative type—exercise, air, food and dental hygiene. (7) Improved economic conditions—stable employment, better wages, fewer hours, ability to buy better food, housing, clothing, and such matter. (8) Prohibition and elimination of alcohol consumption.

B.—To detect disease (especially in early stages): (1) Clinics and dispensaries. (2) Nursing Service. (3) Routine medical examination machinery provided through infant and pre-school clinics, school examinations, and factory examinations. (4) The specialist consultation service. (5) The education of physicians in diagnosis, reporting, etc. (6) Lab-

oratory facilities. (7) Health examinations.

C.—To treat the ill: (1) Clinics. (2) Home nursing, with relief and means to promote hygienic education. (3) Sanatoriums. (4) Hospitals, camps, home hospitals, etc. (5) Occupational therapy. (6) Social and economic follow up of arrested cases.

(III) Measures against mortality (either to prevent or postpone).

A.—Specific measures: This group includes practically all of the anti-tuberculosis measures listed under (II).

B.—General factors, more or less uncontrollable, that presumably affect

the mortality rates. (1) Race group changes in the makeup of a community population. For instance, Irish, Negro, German and French Canadian stocks in this country have relatively high rates, whereas Jews and Italians have relatively low rates. (2) Influenza epidemics—possibly through the fatal selection in certain age groups of individuals who would otherwise have contributed to subsequent tuberculosis mortality rates. (3) The war—deprivation resulting in higher rates and hygienic control and instruction for the industrial age group resulting in lower rates. (4) Climate.

elaborate program for theoretical and practical courses in hygiene which were put in force in twelve different arrondissements in Paris during the past year. The German Red Cross has recently organized an exceedingly interesting program of study voyages for young people. "These voyages were offered by the German Red Cross as prizes in a literary competition on the subject 'Description of the institutions for social welfare in your city.' From among hundreds of competitors thirty were chosen for the awards—eight girls and twenty-two young men. The thirty thus chosen were sent on a journey to a number of the leading cities of Germany and visited the various institutions of public health and social welfare which might be considered as models of their kind.

"These voyages lasted approximately two weeks and awakened in the young people an active spirit of emulation and a desire to participate in the work being done in their own cities, to combat disease and to secure an amelioration of health conditions. Their letters and the reports prepared by them on their experiences have given proof of the excellent results obtained."

Program of Red Cross League

A RECENT memorandum prepared by Sir Claude Hill, director general of the League of Red Cross Societies, outlines the public health program of the League as follows:

(1) The League is the International Secretariat of the (42) Federated Red Cross societies.

(2) The fundamental purpose underlying the international activities of the Red Cross in time of peace is to cause national Red Cross societies to endeavor to remove popular ignorance as to personal and public hygiene and thus: (a) to enable the public to take intelligent advantage of the public health measures devised, by whatever agency, for their benefit, and (b) by avoidance of preventable illness and disability to achieve a higher standard of living both in the material, industrial and in the moral sphere.

(3) With this end in view, the general council of the League, at its session in March, 1922, approved of a definite program of activities which desired that the League Secretariat should stimulate and national societies, members of the League, should adopt.

(4) The basic principle of that program is the propagation of knowledge of hygiene. The methods advocated were: (a) direct intensive popular health instruction through substantive activities, in defined areas, adapted to local needs and conditions; (b) prevention of sickness through the activities of public health nurses, and (c) stimulation of the Junior Red Cross movement.

This last, is a "within-school" movement, which, if it is to achieve success, must secure the support and guidance of the teaching profession upon which it absolutely depends. It aims (i) at inculcating health principles through an acceptable form of "games," teaching pride in personal cleanliness and health, (ii) good citizenship and unselfishness, and (iii) international interest and understanding.

(5) In order to achieve widespread and satisfactory results it is

necessary to popularize membership and, so far as conditions permit, to democratize the organization of Red Cross societies.

This is necessary, not only because it is a condition precedent to getting the general public to interest themselves in, and benefit by, hygienic knowledge, but also because, if national Red Cross societies are to achieve real and permanent results, they must be able to influence as well as to be useful coadjutors with, the state's health organization.

(6) The policy of the League Secretariat, as a corollary of the program approved by the national societies, is (a) to stimulate and assist activities by individual National Societies on the lines laid down; (b) to inculcate the principle that, whenever circumstances permit, activities so stimulated should cease to be a Red Cross responsibility and be taken over by the state or other appropriate organization; (c) to advise national societies to aim at securing:

(i) that the health administration of their countries shall regard them (the Red Cross societies) as indispensable adjuncts in the field of public health, and

(ii) that their methods shall be such that other non-official health agencies shall recognize the Red Cross, not as a competing but as a co-ordinating and complementary agency in the same field.

The League extended its influence to the Far East last fall through a very successful Red Cross conference at Bangkok, November 28 to December 7, and recently bulletins from the headquarters of the League in Paris indicate encouraging progress in the field of Red Cross health educational activities in many countries. The Belgian Red Cross has issued an admirable printed outline of courses in hygiene for the use of its chapters, the Scottish branch of the British Red Cross is organizing a series of health lectures in the county of Aberdeen, and the French Red Cross has an

British Death Rates Lowest on Record

The annual report on British vital statistics shows that great advances have been made in preserving adult and infant life. The death rates of the United Kingdom, 12.1 for males and 11.3 for females, are the lowest on record. In the decade 1841-1850 the death rate was 22.4, so that if that had prevailed the deaths in 1921 would have been 850,000, instead of 450,629. The rates are lower than ever before in all the aggregates up to 65.

The rate per million of population for deaths from tuberculosis is 1,127, the lowest in eleven years, as were the rates from bronchitis and pneumonia. The cancer rate showed a slight increase and was higher than in any year since 1918, the greater part of the increase being among females.

Infant mortality was 83 per 1,000 births, the lowest recorded except in 1920, when it fell to 80. Last year's rate is 25 per 1,000 lower than the average rate of the five pre-war years. Had deaths under one year been at the rate obtaining seventy-five years ago, they would have numbered 129,500, instead of 70,240, showing a saving of some 60,000 infant lives.

Health Program for the American Red Cross*

THE American Red Cross has, for a period long antedating the Great War, included public health work among its major activities. Through its nursing services, through classes in home hygiene and nutrition and through leadership in the field of cooperative organization of voluntary health agencies, it has made contributions of fundamental importance to the cause of public health. Through its primary part in the establishment of the League of Red Cross Societies, the American Red Cross has even assumed a certain sponsorship for the concerted spread throughout the world of the conception of the Red Cross as a constructive peace-time health agency.

Yet, in spite of the special activities noted above, the American Red Cross has, itself, today no real health program—in the sense of a concrete and comprehensive plan of activity which it can recommend as a basic foundation for local action throughout the country. We are well aware that the chapter is the ultimate source of action; but it is as clearly the function of the National Organization to formulate general programs and to exercise leadership in securing their acceptance by the chapters. That no health program has yet received any such general acceptance is indicated by the fact that on September 30, 1922, out of 2,960 chapters reporting, only 33 per cent were maintaining classes in home hygiene and care of the sick, 10 per cent were conducting public health nursing, 14 per cent were making specific efforts to coordinate the work of local health agencies, and only 8 per cent were holding nutrition classes.

The problem laid before your Advisory Committee is, as we understand it, whether the individual health activities of the American Red Cross as carried on at present should be curtailed; whether they should be maintained on their existing basis; or whether they should be developed and coordinated into a health program of sufficient appeal to attract a wider chapter response than has hitherto been manifest.

The advisory committee is unanimously of the opinion that the last

mentioned alternative is the one to be adopted. The charter of the American Red Cross clearly lays upon it the responsibility of preventing as well as of alleviating, the suffering created by preventable disease. Abandonment of health activities is therefore out of the question, and if health work is to be performed at all it seems to us clear that it will gain immensely in efficiency by fuller coordination and more definite emphasis.

From the standpoint of the public health worker and that of the practicing physician, the committee believes that there is a unique need and a unique opportunity for such a health service as the American Red Cross could render. The protection of the public health is fundamentally a governmental problem; but it is a problem which requires for its solution not only official action, but also the intelligent and active cooperation of the individual citizen. Modern wars are not waged by armies alone. The munition worker, the transport worker, the miner, the farmer, play a part as essential as that of the soldier. The war against disease must also be a war of the whole people. Such primary requirements as water supply and waste disposal systems may be provided and quarantine regulations enforced by the governments; but the most important problems of modern public health can be solved only with the voluntary cooperation of the individual citizen.

The object of the public health worker of the present day is to change the daily habits of life of the woman in the home and of the man at the desk and workbench. Such a change cannot be effected by laws, but only by the slow process of education. In recognition of this fact the public health movement in the past ten years has become more and more definitely educational in its very essence.

The Health Study Class

It is in connection with this great educational campaign for public health that the Red Cross finds its supreme opportunity for leadership. Non-political and non-partisan, established in the confidence of the people as the greatest practical world force for the concrete expression of the ideal of service to humanity, with vast potential membership and an organization which can be developed so as to reach into every hamlet, the Red Cross, and the Red Cross alone, can

successfully effect the mobilization of popular sentiment which is necessary to make the control of preventable disease a solid reality.

It has been well stated that "the function of the chapters of the American Red Cross in the health field is the promotion of individual and community health through personal service, group instruction and general health propaganda." Personal service, as a rule, however, should be conducted by the Red Cross during a definite demonstration period, to be turned over as soon as possible for routine administration to the constituted health authorities. In other words, even such actual services as public health nursing are rendered by the Red Cross as educational demonstrations. Education is the center and the essence of the Red Cross health program.

We would recommend, in order that the full possibilities of Red Cross health education service may be realized, that the home hygiene and nutrition work now conducted by the Red Cross be incorporated in a more extensive plan which would aim at the organization within each Red Cross chapter of a health study group—for the consideration (1) of the principles of personal hygiene and (2) of local community health conditions and health needs. This study class or health committee would thus become a continuing force for the support of the public health program in the community served by each chapter—an organized expression of that voluntary interest and voluntary support which are so essential to the conduct of the modern public health campaign. Particular applications will differ in different communities; but there is no single chapter of the American Red Cross which has not members who would benefit by a study of personal hygiene; there is no single chapter which by an intelligent survey of its local health situation could not find some opportunity for concrete service. The development of health study classes and neighborhood health service committees should, we believe, form the basic and universal element in a comprehensive health program; and the national organization should, in our judgment, take a definite and vigorous lead in this matter by preparing outlines of organization, syllabi for lectures and conferences, plans for surveys and suggestive standards for health programs.

*Report of the Advisory Committee authorized to outline a health program for the American Red Cross. Personnel of committee: William H. Welch, chairman; Herman M. Biggs, Thomas S. Cullen, Hugh S. Cumming, Livingston Farrand, Franklin H. Martin, Fred E. Lund, George Morris Piersol, John H. J. Upham and C.-E. A. Winslow. Reprinted from The Red Cross Courier, March 10, 1923.

Although the fundamental objectives of the Red Cross health program should be educational, it is obvious, as we have pointed out, that the best form of community education will often consist in the demonstration by a chapter of the value of specific community health services, wherever possible with the cooperation of other health agencies. Public health nursing and the coordination of existing community health agencies are excellent examples of such demonstrative community health education; and the health study classes will prove an invaluable medium for revealing opportunities for constructive services of this type.

As important integral parts of a health program based on health study and health demonstration we desire to express our hearty approval of the following policies of the Red Cross as at present formulated:

(1) The organization of classes in home hygiene and the care of the sick.

(2) The organization of classes in nutrition.

(3) The organization of classes in first aid and life saving.

(4) The health phases of the Junior Red Cross program, such as (a) the development of personal health habits; (b) participation in a school health program; and (c) participation in community health programs.

(5) The enrollment of properly qualified nurses under the Division of Nursing Service.

(6) The organized development of public health nursing in rural and semi-rural districts, through the activity of the Division of Public Health Nursing.

(7) Assistance in the development and standardization of the training of public health nurses through loans, scholarships, subsidies and the like. (This work of the Red Cross could with advantage be materially expanded in cooperation with the National Organization for Public Health Nursing.)

(8) The development of machinery for the coordination at one central point of the work of various local health agencies.

(9) Cooperation on a national scale with such organizations as the National Health Council for the purpose of furthering the coordination of voluntary public health activities.

Dangers to Be Avoided

If the Red Cross health program is to avoid reasonable criticism it must be so framed and so executed, both nationally and locally, as, in all re-

spects, to supplement and coordinate with the work of constituted public health authorities and of the medical profession.

It should be regarded as an essential principle by the Red Cross that all health work undertaken shall be carried on only with the knowledge and approval of the state department of health and of the locally constituted health authorities of county, city or town. It should be considered a primary responsibility of the division offices of the Red Cross to consult with the state department of health and of the chapters to consult with local departments of health before engaging in any new health activities and to keep such departments regularly informed of their progress and development. It is desirable, whenever possible, that the local health officer should be an active or co-opted member of each Red Cross chapter executive committee.

Essentials for Success

In view of the intimate contact between a public health program of any type and the work of the medical profession, it is recommended that chapters ask the local medical society or the local physicians as a group to nominate a doctor of their own choice to act as their representative on the Chapter Executive Committee or the Committee on Nursing Activities.

It is axiomatic that neither the nurse nor any other Red Cross worker diagnoses, prescribes, or gives medicine or surgical care except under doctor's orders.

The following principles now governing chapter procedures which relate to the medical profession are approved by us:

(1) The nursing of patients shall be carried on only under the direction of a licensed physician.

(2) In advising relative to securing medical or surgical treatment the Red Cross does not choose between individual licensed practitioners. Such choice must be left to the individual patient or to his family.

(3) The Red Cross advises with reference to securing special medical and surgical treatment only after consultation with the physician where one is available.

Chapters which employ public health nurses should request the medical society or the local physicians as a group to endorse standing orders which the nurse should follow in giving nursing care on her first visit to a patient if the patient has no doctor, or if the nurse cannot get in touch with the patient's doctor.

It is understood that such orders do not authorize a nurse to continue giving nursing care after the first visit if there is no doctor in charge, and that the nurse will make every effort to get in touch with the doctor in order to secure his specific instruction in person.

The medical society should also be asked to decide to whom the nurse shall refer indigent patients for diagnosis and treatment in the absence of a public physician for the poor; and to say what the nurse is to do if a patient having no family doctor and no knowledge of local doctors asks for suggestions as to medical care.

The success of the Red Cross health program, on a comprehensive scale, depends, first of all, in our opinion, on the appointment of a Director of Health Services of such capacity, experience and reputation as to command the respect and cooperation of public health officials and of the medical profession throughout the country. He should be provided with such expert assistance as may be necessary to guide and coordinate chapter health activities and the specific health activities listed herein, except Numbers 4, 5, 6 and 7, should be placed under his direction.

In the second place, it seems to us essential, if a comprehensive health program is to be undertaken, that it should be inaugurated with ample publicity and with the full and wholehearted support of the Central Committee and the executive authorities at Washington. Such a program can succeed only with vigorous and enthusiastic support by the central organization of the conception of a broad educational health program as one of the primary and essential objectives of the Red Cross in peacetime.

Finally, it is understood that our approval of the health program is conditioned on the fulfilment of the limiting conditions laid down above and that in approving it we assume that the authority of the official heads of the organization at Washington will be fully exercised to secure the acceptance by the chapters of these conditions.

Advantages to Be Gained

The primary incentive for undertaking a comprehensive Red Cross health program lies in the fact that the greatest present need in the field of public health is the need for educating the individual citizen and mobilizing popular support for the work of existing official and voluntary

health agencies; and in the fact that the Red Cross through its chapter organization is possessed of exactly the machinery best fitted for carrying out such tasks. Incidentally, however, we believe that the American Red Cross would itself be materially strengthened by the adoption of such a program. The power of the Red Cross for the carrying out of its beneficent ideals depends on membership, financial resources and organization. It is the belief of those who have most carefully studied the question, in many countries, that the inauguration of a definite peace-time health program is the step which will prove most effective in increasing its power along all three lines.

The National Red Cross Society should include in its permanent membership from 10 to 20 per cent of the population of the country. It is quite impossible to reach any such standard unless the members first of all receive something for their membership, and, secondly—and this is even more important—are given something practical to do for the organization of which they form a part. The instinct of service is a strong and deep one.

If we can only show to the average citizen that the burden of preventable disease is indeed a menace to the prosperity of the state, as grave as the menace of a foreign foe, we shall find ready response. The health program outlined above gives to the Red Cross member the advantage of organized instruction in the art of living which will protect him and his family from danger; and it makes an inspiring appeal to him to give his services in the task of safeguarding the community as a whole against the evils which threaten it in the form of preventable disease.

In the second place, the health program should greatly increase the financial resources of the Red Cross, not only by multiplying its membership dues, but by making it possible to secure special gifts and endowments for the specific purposes of the health campaign. The safeguarding of health has a peculiar appeal to the wealthy and public-spirited citizen; and the funds which have been obtained for specific health purposes by other organizations are merely an earnest of the potential resources which could be drawn upon for a com-

prehensive campaign against preventable disease.

Finally, the machinery necessary for the carrying out of the health program would provide the Red Cross with an ideal organization, not only for the attainment of these specific purposes, but also for the execution of the tasks of disaster relief and war-time service. The improvisation of machinery to meet an emergency is always a difficult task, but the strengthening and vitalizing of chapter organization which would result from an intensive health campaign would be turned in an instant to the special objective of disaster relief and would furnish a basis for immediate efficiency in the face of a war emergency.

For all these reasons we believe that the inception of a comprehensive health program by the American Red Cross would not only constitute a public service of the first magnitude, but would greatly strengthen the Red Cross for all the other tasks which may be before it; and we urge that such a program be undertaken, along the general lines laid down above, at the earliest possible moment.

Sewage Problems at Indianapolis

THE Report of the Board of Sanitary Commissioners of the Sanitary District of Indianapolis contains a report by Charles H. Hurd, consulting engineer, on the sewage disposal problems of the city which is of unusual general interest.

Indianapolis has a present population of nearly 350,000, and its sewage drains into White River, making it the largest city in the United States situated on a non-navigable stream. The dry weather flow of sewage is fifty million gallons per day and the stream flow varies from 175 second feet in dry periods up to several thousand second feet. In other words, at periods of minimum flow the volume of stream flow is only two and one-fourth times the volume of the sewage which enters it. The seasonal variation in total oxygen demand of the city sewage, and in the available oxygen in White River, is shown in Table I and Fig. 1. The decrease in oxygen consumed and increase in oxygen dissolved for fifty miles below Indianapolis are plotted in Fig. 2, showing the time required for natural forces to restore the river to a reasonable condition of stability. The nuisance created below Indianapolis with the full discharge of untreated

sewage flowing into the river during dry weather flow is of such character that the demand for treatment is unquestionable.

TABLE I.—SEASON VARIATION IN SUPPLY AND DEMAND FOR OXYGEN. WHITE RIVER.

	Available Oxygen		Oxygen Demand	
	Parts per million	Pounds per day	Parts per million	Pounds per day
Jan.	12.6	57,900	...	.....
Feb.	12.3	65,600	...	.....
Mar.	11.9	95,700	150	56,600
Apr.	10.2	68,100	158	59,000
May	8.5	25,800	164	61,200
June	7.3	18,600	187	69,800
July	6.9	18,300	178	66,500
Aug.	7.4	14,400	161	60,200
Sept.	7.9	14,410	140	52,000
Oct.	9.5	17,500	136	50,100
Nov.	11.0	53,200	142	53,000
Dec.	12.5	60,600	140	52,200

By analysis the problem of sewage treatment resolves itself into two parts. During the summer or for approximately six months in the year, complete disposal of organic solids must be made; during the balance of the year or through the period of greater dilution only such treatment may be necessary as will remove objectionable organic solids, leaving an effluent within the range of the digestive power of the river, or in other words, with the oxygen demand under

the amount of the dissolved oxygen available. From the view point of design and construction, a plant to perform the above function must be a combination of a clarifying and complete treatment system.

Based on this assumption preliminary studies were made of the efficiency of screening and sedimentation plants at various other localities and a demonstration plant combining screens and sedimentation units was finally installed. This combination in tests made in 1921 showed from 20 to 51 per cent removal of suspended solids, (averaging about 32 per cent), giving an effluent satisfactory through the period of high dilution in the river and yielding a sludge easily drained to 85 per cent moisture content.

Activated Sludge Experiments

During the year of 1921 a demonstration activated sludge plant was constructed and operated in connection with the screen and rapid sedimentation plant to determine the effectiveness of this method of treatment on Indianapolis sewage. Three complete units were installed with aeration tanks 12 feet in diameter and 15 feet high and settling tanks about one-half the capacity of the aerators.

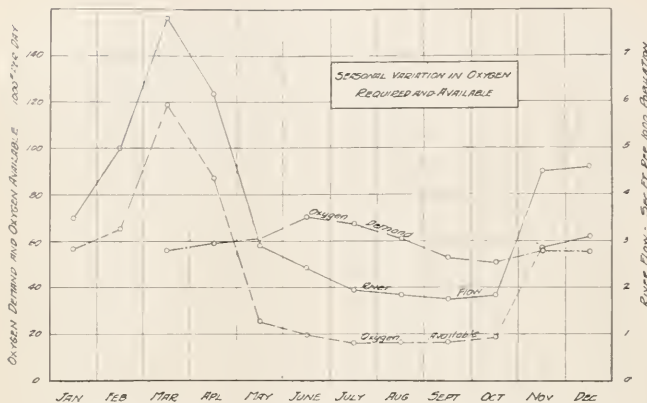


Fig. 1.—The seasonal variation in total oxygen demand of sewage of the city of Indianapolis, and the available oxygen of White River are shown in this figure and in Table 1.

Air was supplied through filtros tile in the usual manner, provision being made for filtering and scrubbing the air to eliminate dust or particles of oil which would tend to clog the filtros plates. Both screened and unscreened sewage were run through these tanks in comparison. The former was handled much more satisfactorily. In one typical test the treatment of the screened sewage yielded an effluent with only 19 p.p.m. of suspended solids, an oxygen consumed value of 26 p.p.m. and stable for 7 days. The air supply was 1.3 cubic feet per million gallons, while the waste activated sludge produced (dry basis) was 1,152 pounds per million gallons.

Final Plans for Plant

Encouraged by the results of a small aeration tank used as a circulating unit with filtros tile arranged eccentrically to give rapid circulation by the air lifting effect, two large tanks were equipped in this manner, while another similar tank was operated in the standard form as a control unit. The filtros areas in the circulating tanks were 10 per cent and 12 per cent respectively. The conventional type of tank had 25 per cent filtros tile area. The three tanks were operated on screened sewage.

All three of these units produced an effluent of high stability. The circulating tanks showed a perceptible saving in the use of air over the standard tank operating with considerably less than one foot of air per gallon of sewage, and also having greater capacity with the same effluent standard.

From all the data available including conservative estimates of construction costs and the comparatively

low cost of fuel and power for operation, and taking into account the high degree of purification and flexibility of the plant, for conditions obtaining, upon the recommendation of its engineer, the Board of Sanitary Commissioners has authorized the construction of an activated sludge plant for the Sanitary District.

The site of the treatment plant, being on the opposite side of the river (two miles below the outfall of the main interceptor) the sewage will be carried under the river in an inverted siphon 1,000 feet long. To prevent deposits in this siphon it was deemed best to locate grit chamber on the east bank of the river immediately in front of the siphon.

The grit chambers containing the coarse bar screens are constructed with three channels, each ten feet wide and with walls ten feet high. Each channel is provided with independent gates to be used in dewatering in addition to stop planks for the regulation of flow. The completed grit chambers and sluice gates are shown in Fig. 3. A controlling gate is installed at the head of the chambers which operates as a submerged weir serving as an overflow for storm water and for rate control. Velocity through the chambers may be regulated from 7/10 to 1 foot per second.

Sixty inch cast iron pipe is used in the construction of the siphon which is laid from seven to twelve feet below the bed of the stream. From the end of the sixty inch siphon the sewage will flow through 8,000 feet of seventy-eight inch reinforced concrete conduit, which has been completed. This conduit continues in almost a direct line, is built on a grade of 0.0008 and has a capacity of 108 million gallons per day. At the point where this conduit delivers sewage into the pump well it is united with the connecting conduit from the west side interceptor which is provided with grit chambers and coarse screens of a size corresponding to the flow for that system.

More than ordinary care has been exercised in the design of plant buildings. For the most part, Spanish type of architecture has been used. The color effect is gray buff brick and terra cotta trim with green glazed tile roof construction. All

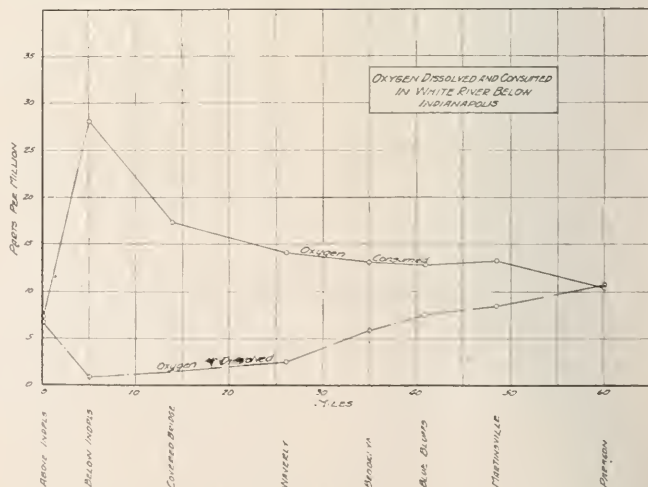


Fig. 2. Oxygen dissolved and consumed in White River below Indianapolis. In the completed process the water will return to the river in a relatively high purified state and the organic solids will be fertilized.

buildings are fire proof and the general arrangement is consistent with the use of the additional acreage, which will be a part of the city park and boulevard system.

The clarification plant for the partial removal of suspended solids comprises twelve revolving drum screens arranged with three in each channel, which are connected with the concentrate thickener tanks constructed just outside of the pumping station building. The screens are constructed entirely of brass and bronze, eight feet long and six feet in diameter and arranged to filter from the outside in, delivering the effluent through an opening at the end. In a measure the screens are self cleansing as part of the effluent passes through the down stream side of the screen removing adhered solids, and is further assisted by the rotation of the screen element through this clarified zone. No. 30 phosphor bronze wire cloth is used as the screening medium.

In order that the screens may give maximum removal it is essential that the process be carried on without the breaking up of the solid particles. For this reason the heavy concentrated sewage containing all the retained solids is conducted by gravity, to the concentrate thickeners from which the heavy sludge is continuously removed by mechanical means.

The concentrate thickener tanks are four in number, 15 feet wide at the top and approximately 120 feet long. These are equipped with slowly moving flights which will sweep the hopper bottom operating counter to the current. The return flights move with the current and at approximately the same rate with a maximum speed of seven and one-half feet per minute.

The clarified effluent may be discharged directly into the river (at times of high flow) or pumped to the aeration tanks for further treatment. In the activated sludge plant, aeration tanks are designed and being constructed of the circulating type found most advantageous at the demonstration plant. These tanks have flat bottoms, each with four channels 238 feet deep. Settling tanks for the activated sludge are of the mechanically cleaned type and conform in dimensions to the aeration tanks. The aerations tanks are designed for an average rated capacity of twenty million gallons per day per acre and the settling tanks for a maximum rate of about 1,600 gallons per day per square foot of area.

The total estimated cost of the entire project is \$2,438,000.00. Of this

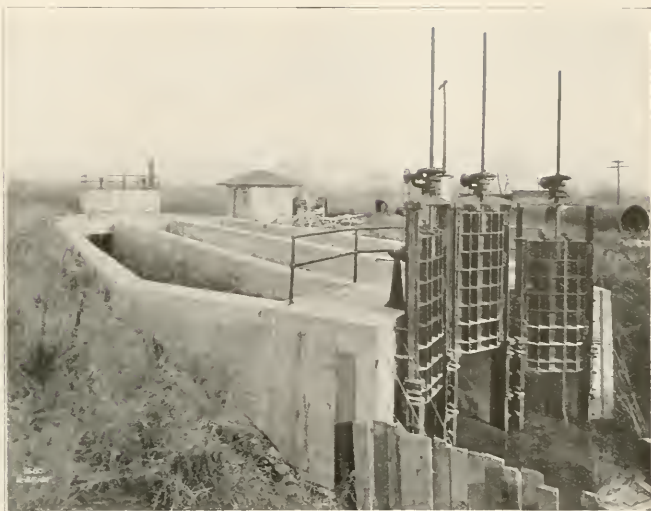


Fig. 3.—Controlling gates and detritus tanks of the preliminary sewage disposal plant.

\$676,600.00 is allowed for interceptors, connecting conduits, outfalls, roads, levees and river protection; \$491,000.00 for the clarification and pumping plant, including fire screens and concentrate thickness tanks; and, \$1,270,400.00 for the main power plant with compressors for aeration, the complete activated sludge plant, the water supply and sludge dehydration.

The clarification system and main

interceptors in accordance with the construction program are to be completed and put in service in the spring of 1923 and the activated sludge plant—final purification—1924.

In the completed process the water will return to the river in a relatively high purified state and the organic solids will be fertilized; all to the betterment of public health and assisting in an important economic cycle.

A. M. A. Winter Conference

THE American Medical Association conference on medical education and public health, held in Chicago, March 5 to 7, was marked by an admirably constructive and harmonious spirit. Its program included discussions of hospital problems and of the principles underlying the relation between the physician and the public, which need not be analyzed here in detail. Under the heading of medical education, an interesting discussion centered about the Toronto plan (presented by Dr. Ryerson) for replacing the division of the medical sciences along the conventional lines of anatomy, physiology, medicine and surgery, by a classification according to the organs of the body; the first year student, for instance, learning all about the bones (anatomy, physiology, medicine, surgery, etc., of the osseous system), the second year student all

about the circulation, and so on. This is a suggestion which will not strike the public health worker with great favor since it seems likely that such a training would aggravate the tendency to look for particular diseased organs rather than to consider the health of the human body as a whole.

The last session of the conference was devoted to the problem of the training of sanitarians, with Surgeon-General Cumming in the chair. General Cumming and Dr. Draper recounted the work done by the Public Health Service since the conference of last March in collecting and disseminating information in regard to facilities for training and opportunities for trained men in the field of public health. Dr. McLaughlin outlined the steps for standardizing degrees and certificates in Public Health which have been taken by the standing committee on public health

training of the American Public Health Association. Prof. Winslow spoke of the importance of inspiring the medical school with the ideals of preventive medicine, and particularly of what has been done along this line at Yale. Dr. Haven Emerson and Dr. F. W. Sears of Syracuse discussed the extremely important problem of organizing short courses for the health officers now in the field.

Perhaps the outstanding event of the whole conference was the report before Dr. Bevan's section of a special committee on nursing education. Dr. Lovett of Boston, the chairman of this committee, presented a review of the problem and a set of recommendations which promise to prove of epoch-making importance. The conclusions of Dr. Lovett's committee were backed throughout on those of the Rockefeller Committee on Nursing Education and endorsed without qualification the development of shorter (twenty-eight months) and better courses of training for the bedside nurse, courses based on a high school diploma, freed from hospital routine and organized on a truly educational basis. It also endorsed the plan for the training and licensure of a second grade of nursing aids for the care of chronic illness and convalescence. Furthermore, Dr. Lovett recommended that definite steps should be taken for standardizing curricula and for grading training schools along the lines laid down; the work to be done by a joint committee made up of physicians appointed by the A. M. A. and of nurses appointed by the League for Nursing Education, in equal numbers, with one additional member who should be an educator but neither a doctor nor a nurse. The broad and liberal vision evidenced in this report is highly promising. It will take the joint effort of the medical and the nursing professions to place nursing education on the plane where it belongs; and Dr. Lovett's committee has presented a platform on which co-operation can be secured with honor to all concerned.

A bill concerning uniform regulation of marriage and divorce, recently introduced in the United States Senate, contains several items of interest to sanitarians. For instance, Section 4 states that no license to marry shall be issued to a person who is insane, imbecile, pauper, epileptic, feeble-minded or afflicted with tuberculosis or venereal diseases.

Cancer Death Rate is Higher

The returns complied by the Bureau of the Census show that more than seventy-six thousand deaths were due to cancer in the registration area of the United States in 1921. Assuming that the rest of the United States had as many deaths from this cause in proportion to the population, the total number of such deaths would reach 93,000 for the entire United States, while for 1920 the number is estimated at 89,000, or four thousand less than for 1921.

The trend of the cancer death rate is upward, the rate for 1921 being higher than that for any earlier year in twenty-three of the thirty-four states for which rates are shown. The cancer death rate in the registration area in 1921 was 86 per 100,000 population, against 83.4 for 1920. In comparing the death rate from cancer in one state with that in another, the Bureau uses "adjusted" rates in order to make allowance for differences in the age and the sex distribution of the population, because generally speaking, only persons in middle life and old age have cancer, so that a state with many old persons may be expected to have more deaths from cancer than a state with comparatively few old persons.

The highest "adjusted" cancer rate for 1921 is 99.6 per 100,000 popula-

tion for the state of Massachusetts, and the lowest is 47.6 for the state of South Carolina.

For a few states adjusted rates have been calculated separately for the white and colored population. In this group of states the highest adjusted cancer rate for the white population is 95.9 per 100,000 population for New York and the highest rate for the colored population is 90.6 also for New York. The lowest adjusted rate for the white population is 51.5 for Tennessee and the lowest for the colored population is 36.4 for Florida.

Summarized briefly, the adjusted rates show that the northern states have comparatively high and the southern states comparatively low cancer mortality, while there is little difference between the adjusted cancer rates of the white and colored races of the same states. In other words the white and colored races seem equally susceptible to cancer, but both races seem less susceptible in the south than in the north.

The Rockefeller Foundation has elected to its board of trustees Dr. Ray Lyman Wilbur, president of Stanford University, and William Allen White, editor, Emporia, Kansas, and to membership on the International Health Board, Dr. David L. Edsall, dean of the Harvard Medical School.

Mechanical vs. Psychic Factors in Accidents



Underwood & Underwood

Much has been said about the "personal equation" in the effort to clarify questions of culpability in serious accidents. Several states, notably Indiana, have lately advocated psychological examination of all automobilists. That mental and mechanical factors are inseparably connected was brought out in a recent case tried by Judge Joseph Chambers of Los Angeles recently. The complicated accident was re-enacted by the use of toy autos and street charts, and the enreless driver was incriminated as a result of the study. Why the laborious effort to save the child from disease and permit reckless destruction of life through preventable accident?

Illustrated Health Talks for Children

By H. E. KLEINSCHMIDT, M. D., ACTING DIRECTOR, DEPARTMENT OF MEDICAL MEASURES, AMERICAN SOCIAL HYGIENE ASSOCIATION, NEW YORK CITY.

THE writer, who is not by occupation a teacher of children, recently enjoyed the opportunity of giving a series of health talks to boys and girls ranging in age from eight to fourteen. The results of this attempt are, in his opinion, sufficient justification for presenting herewith one of the talks as a suggestion to others who may have the opportunity of teaching children, and in the hope that if there is merit in the method it may be developed by others more adept.

In all of the talks simple objects commandeered from the household, or purchased at small cost, served to stock the speaker's "bag of tricks." The fact that, in spite of his inexperience in this particular undertaking, the complete attention of the children was steadily sustained for twenty minute periods, he attributes to the inherent interest all children seem to have in the methods of the magician, be he crude or clever; or perhaps the "vicarious" restlessness of the speaker in demonstrating his objects will account for the concentration of his youthful audience.

If the method is pedagogically sound, there is no reason why almost any phase of health teaching may not be suitably illustrated in a similar manner. Since expensive equipment is not necessary such talks may be given under most modest auspices and in the remotest rural school, the only requirement being that the teacher understand the subject and that she exercise a bit of ingenuity in inventing and finding the appropriate graphic aids. A typical example of talks of this kind is talk number 6, to children and their parents on health examinations, reproduced herewith.

Until the public learns to appreciate scientific medicine, little progress can be made in combating the evils of quackery, cultism, self-treatment and health-neglect. Too many people treat their bodies, highly organized pieces of mechanism, as if they were made of imperishable stuff, resistant against all abuse, and with little attempt to conserve the precious heritage of health. When illness does come, the tendency is to experiment or listen to the advice of the most plausible advisor with a childish gullibility which is disheartening to the trained health worker.

An illustrated talk, something like the following, may perhaps tend to create a respect for the human body as a machine and to emphasize the point that a medical tyro should not be trusted to adjust that machine when perchance its functions deviate from the normal. It may serve also to impress the importance of a periodical physical examination. While designed primarily for children of middle and upper grades this talk should be of interest also to adults, especially if given to a group of parents and children, ostensibly to interest the latter.

The properties consist of: an alarm clock which has outlived its usefulness; a hammer; a screwdriver; and a pair of pliers or other tools. The alarm clock is "fixed" in advance in such a way that when the back is removed springs, pinions and wheels fly out in a most inglorious fashion.

Objective Methods

The speaker, holding up the clock, says "No household is complete without this well-known friend. It is used, I suppose, to remind boys when it is time to eat.—No?—Of course not—boys do not need that kind of reminder. Ask Dad, he knows what it is for—many a comfortable dream of his has been rudely interrupted by the over-zealous alarm clock."

"This clock of mine has been ticking merrily on for some two years, but the other day it suddenly stopped. What can be the matter? What do you advise me to do with it?" Someone suggests that it be taken to the watchmaker. This good advice is scorned, for "why should I, a practical amateur mechanic, spend good money to have it repaired? I understand machinery and have no money to waste on the watchmaker—I am going to fix it myself." The clock is vigorously thumped with the fist and then held up to the ear. No result. Very well, a harder blow with the hammer sometimes wakens the engineer inside. Bang! bang! bang! with the hammer, bang! bang! Still it refuses to go. The hammer has succeeded only in denting the sides and cracking the glass. "But we will open it and see what makes it 'not tick' as the Irishman would say." The speaker takes up various tools with a great show of craftsmanship and labors

with the clock. He is awkward, sometimes pounds his fingers or lets the clock slip out of his hands, but eventually succeeds in prying off the back cover. With a whirring rush the spring leaps forth, startling the speaker, who drops the clock, while bits of the works scatter about over the floor. (The younger children will be delighted with this bit of slap stick if it is skilfully staged.)

"Oh, what a hopeless mess—how foolish I was to meddle with something I do not understand. 'Cobbler, stick to your last' is a lesson one cannot afford to ignore." Thus the speaker goes on good humoredly to chastise himself. "Well," he says, resignedly, "it is truly a scrambled clock—let us make a new start."

Turning suddenly to the teacher, who has, without the knowledge of the audience previously agreed to be a confederate, he says, "Miss Brown will you oblige us by lending me your watch?" Of course Miss Brown is loath to do so and declines as gracefully as she can. It is patent that she does not wish to trust her watch to the speaker. After some good natured banter and a solemn promise that it will not be injured she reluctantly gives up her watch. The speaker admires it. "Ah, no wonder, what a beautiful timepiece!—presented to daughter!" (reading the engraving inside the lid) "on graduating from high school, 19—." Not a cheap watch this—an Elgin—it is a charming piece of mechanism in a beautiful case."

A dialogue ensues between the teacher and speaker in which it is brought out that the watch keeps excellent time, that she winds it regularly, handles it tenderly, etc. Once, alas, it was injured by a fall. Did she attempt to repair it? Indeed not! Carefully she carried it to a blacksmith (Miss Brown is shocked and protests instantly)—"Of course, beg pardon, she took it to a skilled watchmaker." The picturesqueness of this interesting craftsman is dilated upon if time allows. The skilled craftsman received it lovingly, as if it were an only child, and with deft hands and cunning tools restored it to its original state. "That was six years ago—and has it never been back to the watchmaker?" Oh, yes, once each year she takes it to him for examination and cleaning for, despite the fact that the

double set of lids fit with uncanny accuracy, tiny bits of dust *will* get inside and clog up the delicate works. The oil, too, becomes dried and sticky. This means friction; friction means wear, and wear means eventual destruction. "But with the excellent care Miss Brown gives her watch it will doubtless keep accurate time for many a year, and perhaps be passed on to her granddaughter when she graduates from high school," which brings an embarrassed blush to Miss Brown's smiling face.

"How many boys and girls own a watch?" Not many. "How many are going to own a watch when they are old enough to take care of one?" Every hand goes up enthusiastically. "Do you know that each of you is the custodian or caretaker right now of a wonderful piece of mechanism far more valuable, more precise, more delicate and more useful than the finest watch in the world? The human body is sometimes regarded as a machine. A watch does one thing, keeps time. An auto another—it runs. A sewing machine still another—it sews. (The children supply the answers). But how many useful things the human machine does! The children, asked to name some, begin by saying it can walk, make things with the hands, etc. They are led on to include seeing, hearing, digesting, breathing, the pumping of the blood and, last and most wonderful, thinking. "Does the machinery ever go wrong?" Unhappily yes. Fingers are cut, heads are bruised, legs are broken, the body becomes ill. "Then I suppose we tinker with the machinery just as I did when I 'fixed' the clock? We buy a bottle of pink medicine (don't know what is in it or what it will do but the label assures us it will cure whatever ails us). Or we ask a friend what cured him; or we allow a person who proclaims himself as a human repairman but who has not studied the human body long, intelligently, and diligently, to tamper with human machinery.—No. No, we cannot afford to do that. We seek out an expert, a doctor, one who, though humbly modest because of the little he knows about so sacred and complex a thing as a living breathing body, yet makes it his earnest life's work to understand some of the secrets of the mechanism of the body. To him we go for advice, and the wise physician, with his ear carefully attuned to the whisperings of Nature, tells us how best to give Nature, the real restorer, a chance to set the machinery in order again. The doctor is to the human

body what the watchmaker is to the watch."

"Keep well is better than get well. Damage once done may not always be remedied. Nature is generous in dealing with her children but sometimes the damage is so great that complete repair is impossible. Do you know that the human body is the only machine for which there are no spare parts?" Tell the story of a friend who owned a valuable Swiss watch. A certain vital part became broken. The local watchmaker could do nothing with it until he had sent to the original maker of the watch in far away Switzerland for the necessary part, and for eight weeks this friend was obliged to wait. Repeat the thought that for the human body there are no spare parts, in Switzerland or anywhere else.

All damage to the human body, except in cases of accident or certain acute diseases—most of which are now avoidable—usually takes place very slowly. And fortunately the damaging process may be discovered by one who understands the mechanism of the human body before serious harm has been done. It is the wear and tear due to neglect which most often breaks down the human machine. A bit of dust in a watch may wear down one of the smooth-moving parts of the watch. Soon the roughness of this part has its wearing effect on the part into which it fits, a phase which may be illustrated by using some of the parts of the alarm

clock. As time goes on the entire works become damaged and the watch is ruined. Just so, slight disorders of any part of the body, if neglected, have a damaging effect on other parts. Why not, as Miss Brown does with her watch, take the human machine to the master at least once a year for examination and overhauling just to be sure that all is working smoothly. An excellent idea, and to a degree that is what our school physician, ably assisted by the school nurse, is doing for us. They with their trained eyes and ears and fingers look us over once a year and tell us just what little defects need correction. Some of us are told how to eat, others are taught better posture, still others are advised to see their family physician so that a valuable machine may not suffer because of neglect.

"It is foolish to keep the mind constantly fixed on the state of one's organs, and worse yet to be ever fearful of disease. A health examination at least once a year will banish that worry. But most valuable of all is the satisfaction of knowing that our machine is in perfect running order. That alone is sufficient reward."

Monroe County (N. Y.) Tuberculosis Sanatorium has affiliated with the Rochester General Hospital to start a school for trained attendants. The course consists of thirteen months training. Graduates will be given the title "Trained Attendants."

New Health Era in Honolulu



The House of Friendliness under the auspices of the Young Women's Christian Association of Hawaii is to be credited with the first consistent effort to train the native women in first aid and in the fundamental principles of child care.

Wide World Photo

Colorado Rural Work in Tuberculosis

Rural Work of Colorado Springs Branch of the Colorado Association

BY ELOISE A. CLEVELAND, DIRECTOR OF SOCIAL SERVICE-NUTRITION DEPARTMENT, COLORADO SPRINGS BRANCH, COLORADO SPRINGS, COLO.

IN THE fall of 1921, the Colorado Springs Tuberculosis Association, with the approval of the County Superintendent of Schools, undertook the demonstration of the Modern Health Crusade in the Lewis Consolidated Schools at Monument, Colo., to find what actual results could be obtained.

The school had 170 children enrolled. Health talks were given by the representative of the Colorado Springs Tuberculosis Association before the Parent-Teacher Association and in the school. Both the Parent-Teacher Association and the school quickly responded with ideas of their own. From that first meeting until the end of the year, there were few meetings of the Parent-Teacher Association where health topics did not predominate. The School showed its interest by making the Crusade a vital part of its course, correlating it with every study.

In January, 1922, an examination was arranged through the aid of interested physicians. The parents were present, and all through the year, the defects found were being corrected. It was found that including borderline cases 75 per cent of the children were underweight. The whole school became interested in a nutrition program. Hot lunches were served for two months, \$160 being raised by the Parent-Teacher Association to furnish one hot dish daily for all the children, and six gallons of milk to furnish mid-morning and mid-afternoon lunches for those underweight. A study of food values and combinations was made in each room. This intensive work resulted in bringing all except twenty of the children to normal weight within two months.

In the physical examination, it had been found that the majority of the children in the first, second, and third grades had slight curvature of the spine, due to faulty seating. Blocks were placed under the children's feet and larger children put in the higher seats. To correct the curvature, posture drills and relaxing drills were given daily throughout the entire school.

Ten minutes are given each morning for health work. This included inspection and health talks by the teacher. Games, folk dances, health plays and stories made the work interesting to the younger children. In the high school each Friday afternoon was given to the discussion of health problems, the students having prepared papers under the guidance of their teachers. Several addresses by physicians were made before the Parent-Teacher Association and the school, in addition to those of the regular worker. The school was visited at least monthly. The principal and teachers kept in close touch with the worker by correspondence and through calls at the office. As the workers time was limited, the weighing and measuring was done by the school.

The teachers were more strict in counting chores than the Crusade required, as they demanded the performance of each chore at least five times each week.

As the Lewis Consolidated School at Monument had successfully demonstrated the results which could be attained through the Modern Health Crusade, it was decided by the Executive Committee, at the end of the year of work, to make the Crusade a permanent department of the Colorado Springs Tuberculosis Association, employing a full time worker as Director of the Crusade among the rural school children of El Paso County.

In the fall of 1922, definite plans were outlined. Dr. C. O. Giese was asked to take charge of the department. All work has been done under his supervision. The plan for the rural work follows:

(1) A complete physical examination of each rural school child in the county. Records of each examination

to be kept in the office of the Colorado Springs Tuberculosis Association and in the schools. A letter to be sent to each parent, giving results of examinations.

(2) Talks by physicians on hygiene, children's diseases, etc., at request of Parent-Teacher Associations.

(3) The establishment of the Modern Health Crusade in a limited number of consolidated schools.

(4) Contest between schools in greatest percentage of corrections both in weight and physical defects.

(5) Visit by Health Crusade worker twice a month in schools undertaken. Monthly weighing of all children in these schools.

This rural work was actually begun on November 1, when preparation for the first physical examination was started. The city worker was directed to organize this work.

It was agreed that the superintendent of county schools, should receive all applications for medical examinations from the principals of schools. These applications were then to be sent to the Colorado Springs Tuberculosis Association who would care for them in the order of dates.

All applications for the follow-up work through the Modern Health Crusade were to come from the principal and Parent-Teacher Association to this association direct.

During the months of November and December, 704 children were weighed and measured; five addresses were made to Parent-Teachers associations with a total attendance of 255; 24 Health Crusade addresses were given to teachers and children with a total attendance of 682; four school medical clinics were held with service to 384 children; and three other schools were prepared for such clinics. In November, when the El

TABLE I.—PERCENTAGES OF CHILDREN UNDERWEIGHT, NORMAL AND OVERWEIGHT IN SOME SCHOOLS IN EL PASO COUNTY, COLORADO

	Fountain	Manitou	Peyton	Edison	Harrison	Lytle
	249	125	50	133	18	33
Number in school.....	249	125	50	133	18	33
Per cent	Per cent	Per cent	Per cent	Per cent	Per cent	Per cent
7% or more underweight.....	32	37	50	10	11	85
Less than 7% underweight.....	27	31	20	..	22	29
Normal.....	37	28	26	..	66	29
Overweight.....	2	2	4	..	..	..

Paso County Autumn Exposition was held, space was reserved for the Association on a platform about twelve by ten feet, screened on three sides. Here posters, procured from the state office, taught lessons in hygiene and food. The central attraction was a pair of scales where large numbers of rural school children were weighed daily, while eager parents anxiously waited to know if the children were up to normal. A nutrition worker was in attendance all day to answer questions as to what should be done with children underweight. The exhibition aroused great interest. The need for this form of work as revealed by monthly weighings is shown in Table I.

The Modern Health Crusade will be confined to a small number of consolidated schools, as it is thought that the best results will be obtained through intensive work, rather than in spreading the work over a county of 2,310 square miles. The work is being done on the same lines as that done in Monument in 1922, arousing the interest of the children through health songs, poster work, games, etc., as well as in giving instruction in values of food, hygiene, and community problems.

The physical examination of rural school children was begun in El Paso County in 1921. As in all work of this kind, it has taken much time and thought to get the examination, preliminary work, and follow-up work on the most efficient working basis. The form of medical examination blank, compiled by the group of physicians undertaking the work, has eliminated much unnecessary delay and labor. This form provides for the examination of each child by six specialists, with one side of the form for a complete social history and diagnosis. In this form there is space for each specialist to make his own recommendation, showing on the same sheet all data gathered from the whole examination. On summary sheets each defect is listed and recommendations summarized, giving not only the complete physical condition of each child, but of the whole class, in a concise form. A summary sheet is made for each class in every school examined. These sheets when completed will afford the most complete picture of physical conditions among rural school children in this section. The following method of procedure is used:

On receipt of the principal's application for a physical examination, a letter is sent to him advising on what day the examination will be held, what the school will need in equipment, and stating what social

data will be needed concerning the children.

As the physician's time is most valuable, a worker is sent several days before the examination, with trained volunteers, to weigh and measure the children, compute weights, and take social histories.

This worker also prepares the school rooms to be used during the examination. These rooms are so arranged that there is no lost motion during the examination. On the morning of the examination, the child is given an examination blank, on which has been written his name, age, weight, height, percentage underweight, or overweight, and social history. He is taken to the undressing-room, where several parents are waiting. He is quickly stripped to the waist, wrapped in a sheet, and, with shoes unfastened, is passed into the adjoining room, where he is examined by the surgeon, using the school's business tables for examining tables. From here he is sent into the internist, who gives a complete chest examination. After this, he goes to the dressing room, where his clothes have been transferred to prevent any confusion between the children who have been examined and those who have not. After dressing, he goes to the nose and throat specialist, whose room is fully equipped and darkened, and last to the oculist, and nerve specialist. On finishing, his paper is handed to the person whose sole duty it is to collect these papers, and the child returns to his room. Nothing is permitted to interfere with this continuous motion which saves so much time and confusion. When necessary, dressing and undressing rooms are curtained off in the corridors. At all times the sense of modesty is respected. The children are taken by sex, beginning with the first grade, going through the grades first with the girls, and then with the boys.

At these examinations, there are usually present, two surgeons, four internists, two nose and throat specialists, one oculist, one nerve specialist, one Medical Director, who is in charge, inspecting each record as it is handed in.

Each physician brings his own checker. The worker from the Tuberculosis Association is responsible for the machinery running smoothly. She usually uses interested parents in dressing the children, in directing them in the halls, and in providing any articles, such as sheets, for the examination. The Parent-Teacher Association provides a lunch for the physicians and checkers at 12:30 p. m.

The examinations begin at 9:00 a. m., ending at 12:15 p. m.

The principal and Parent-Teacher Association always wish a report of the examination at their next meeting. The Association has always arranged for some physician to make this report, explaining the defects and recommendations.

In cases brought to the attention of the Colorado Springs Tuberculosis Association, by the Principal and the Parent-Teacher Association, where the parents are unable to finance the correction of defect, arrangements are made for the work free of charge. Laboratory tests have been made and operations performed when necessary, although parents who are able, are urged to take their children to their private physician.

Within a short time after the examination, the parent of each child receives a letter from the Association, advising him of the weight of the child, and of the recommendations of the specialists. A form letter is used which permits the filling in of individual recommendations. It is signed by the Colorado Springs Tuberculosis Association.

The value of the work is becoming recognized by the schools, who are turning to the Association for information on all health questions, such as the possibility of books used by all school children containing tuberculosis germs, and the possible impurity of the school drinking water.

It would be impossible for the Association to give the schools such efficient service if the physicians were not so keenly interested in the work. They give their time most generously. An examination is planned for one morning out of each week. In addition to this, they give much outside time in summary work and in consultation with the workers over individual cases. It is to them that the children in El Paso County will owe much of their health and happiness.

Open Air Shack at Saranac



The American Legion camp at Saranac has evolved this type of open air camp for care of soldiers convalescent from tuberculosis.

Digest of Sanitary and Hygienic Advance

Diphtheria Prevention

Zinger recommends omitting the use of the Schick test and the giving of the toxin-antitoxin injections to all children between the ages of six months and six years. The author also considers the functions of the baby health stations and the private practitioner in immunizing the pre-school child against diphtheria. (*J. A. M. A.*, Feb. 17, 1923, lxxx, 7, p. 456.)

Cost of Venereal Disease Control

The chapter on venereal disease control from the forthcoming report of the Committee on Municipal Health Department Practice of the A. P. H. A., (*J. Social Hyg.*, Jan. 1923, ix, 1 p. 27) states that the average per capita expenditure by municipal health department for venereal disease control in 38 cities is \$.021. In cities of the first population group the expenditure is \$.014; in the second group \$.024; and in the third group \$.032.

The largest per capita expenditure recorded, \$.145, is credited to San Diego.

"In the future, if municipal health departments assume responsibility for all activities of a complete program for venereal disease control . . . appropriations for venereal disease control must be considerably higher than they are at the present time."

Vital Statistics for England and Wales

A provisional statement by the Registrar General for the year 1922, gives the following death, birth, and infant mortality rates for England and Wales, London, and groups of towns.

	Birth Rate	Death Rate	Infant Mortality
England and Wales	20.6	12.9	77
105 County Boroughs and great towns incl. London.	21.5	13.0	81
155 Smaller towns	20.5	11.7	75
London	21.4	13.4	73

The birth rate given for England and Wales is the lowest recorded, except during the war years of 1915-19, while the infant mortality rate is actually the lowest on record. (*Lancet*, Jan. 27, 1923, i. 5187, p. 193.)

Industrial Diseases of the Eyes

According to Dr. T. M. Legge, H. M. Medical Inspector of Factories, amblyopia from lead poisoning, which used to be an important cause of industrial blindness, is now comparatively rare. (*Lancet*, Jan. 27, 1903, i, 5187, p. 192.) "Since 1900 lead poisoning has diminished by more than one half. In the years 1905-09 there were found twenty cases of optic neuritis from this cause; in the corresponding period, 1915-19, there were only six. These results, he says, have been largely accomplished by the advance made is locally applied exhaust ventilation, by means of fans, to remove dust and fumes at the point at which they are produced, and so prevent inhalation of them by the workers. Before the war some cases were reported of amblyopia occurring in the manufacture of explosives in which dinitrobenzol was employed, but during the war blindness from this cause does not seem to have occurred. On the whole risks of toxic amblyopia in connection with industrial processes are now fairly well guarded against."

Relapse in Malaria Produced by Ultraviolet Light

In order to test the theory that spring relapses in malaria are in part due to the effects of sunlight, Whitmore (*Amer. Jour. Trop. Med.*, vol. ii, p. 475) studied the effect of ultraviolet light upon infected canaries. He found that relapses could be produced by the rays (at 24 inches distance) in two hours with the normal bird and in fifteen minutes with the feathers of the exposed area removed. When filtered through ordinary window glass the light lost its effect.

Treatment of Chronic Typhoid Carrier

Watt reports successful treatment of a chronic fecal typhoid carrier with detoxicated vaccine. (*Lancet*, Feb. 24, 1923, i, 5191, p. 378.) Treatment at first by subcutaneous injections was later combined with oral administration which was continued after injections were stopped.

Typical *B. typhosus* at first present was replaced by an atypical organism, giving the sugar reactions but failing to agglutinate. Finally both forms disappeared and eighteen successive examinations revealed neither form.

Serum for Rocky Mountain Spotted Fever

Noguchi reports (*J. Exper. M.*, March 1, 1923, xxxvii, 3p. 383.) an unsuccessful attempt to produce from horses immune serum for Rocky Mountain spotted fever. The only animal which yields a useful serum both in potency and quantity is the rabbit. "By the early administration of such an immune serum the virus introduced into the guinea pig can be prevented from multiplying and causing fatal infection." If given during the incubation period, suppression of infection is assured; after the onset of the disease the serum has no beneficial effect.

For human cases the writer recommends testing the efficiency by intravenous injections of about 0.1 c. c. per pound of body weight.

Industrial Accident Causation

In the Industrial Fatigue Research Board's study of accident causation (Report No. 19), E. E. Osborne and Dr. H. M. Vernon state that immunity from accidents in shell factories was greatest at 67 degrees Fahrenheit, and the frequency increased at lower temperatures until at 52 degrees accidents were 35 per cent more numerous than at 67 degrees. At temperatures above 67 accidents showed a small rise in the women and men showed an increase of 39 per cent at 77 degrees. Chief controlling factors in accident causation were found to be speed of production and the psychic state of the worker. Fatigue played only a small part. This was substantiated by Professor B. Muscio in the second part of the report who found no loss of manual skill following an exercise involving moderate muscular activity carried out continuously for three and a half hours.

Protein Diet and Blood Pressure

An attempt, under hospital conditions, to determine the relation of a heavy protein diet to high blood pressure is reported by Strouse and Kelman. (*Arch. Int. Med.*, Feb. 15, 1923, xxxi, 2, p. 151.) The authors found nothing in their experiments that would lead them to believe that there was any relation between variations in blood pressure and the intake of protein food.

New Regulations for the Diploma in Public Health

"New resolutions and rules drawn up by the General Medical Council for diplomas in public health have now been embodied in the regulations for obtaining this diploma, and will come into force on January 1, 1924." (*Lancet*, Feb. 3, 1923, I, 5188, p. 240.)

The alteration creating most comment is one that stipulates that no candidate can be admitted to Part II of the examination until he can produce evidence of having been in possession of a registrable qualification in medicine, surgery, and midwifery during not less than two years, and of having completed the curriculum for the diploma extending over a period of twelve calendar months subsequent to the attainment of a registrable qualification.

This and the other changes in qualifications have aroused much discussion in the British medical press. The changes, according to most commentators, tend to discourage young medical graduates and make it difficult for the physician in general practice to qualify for the position of medical officer of health.

Experimental Epidemiology

Experimental epidemiology is a comparatively new method of scientific investigation. It promises more rapid advancement in knowledge than can be expected from the tedious process of waiting for a human epidemic, that we are all the time hoping to prevent, and then studying this under uncontrolled condition.

One of the pioneer tests of this method is being conducted by Webster at the Rockefeller Institute. He states that with "a given susceptible mouse population and a certain strain of mouse typhoid bacillus, the sporadic and epidemic prevalence of mouse typhoid are determined by the special and quantitative distribution of the bacilli." No evidence was found to substantiate the contention of other workers that there was a change in virulence during the spread of the disease. (*J. Exper. M.*, Feb. 1, 1923, xxvii, 2, p. 269.)

Physiological Effects of Tobacco

Mathien and Merklen (*C. R. Soc. de Biol.*, Lxxvii, p. 879, 1923) report that exposure to cigarette smoke markedly prolongs the time necessary for white mice to find their way out of a labyrinth.

Testing Shaving Brushes for Anthrax

According to Knott (*Lancet*, Feb. 3, 1923, i, 5188, p. 227) the process of fixing the stump hairs of shaving brushes with a hot glue-like substance often effectively sterilizes the portions of the hair so fixed.

These observations were reported in view of the fact that an idea appears to be prevalent that the correct way to examine a shaving brush bacteriologically is to seek for anthrax in the stump. "The presence of the organism in this site is admittedly almost conclusive evidence of the manufacturer's use of infected hair, but where the stump does not contain anthrax, and the free hairs do, it cannot with equal certainty be assumed that the hair originally employed was not anthrax infected."

Zinc Poisoning

In a large institution near London four hundred persons were served apples that had been stewed in galvanized iron containers. "Within a few minutes more than two hundred of those who partook of the stew complained of dizziness, sickness, or feeling of sickness, colic, and tightness in the throat. There was some diarrhea but no double vision." Doses of bismuth and chalk mixture were administered. Only ten of the persons affected appeared to be seriously ill and all were able to carry out their ordinary work the next day.

Chemical examination showed that the apples contained 7 gr. of zinc, expressed as zinc oxid, per pound, this being equivalent to 25 gr. of hydrated zinc sulphate per pound. (*Lancet*, Feb. 3, 1923, i, 5188, p. 242.)

Regulating the Use of White Lead Paint

"A bill is being prepared by the Belgian Ministry of Labor which will prohibit the sale of white lead under certain conditions, determined in accordance with the conclusions reached at the Third International Labor Conference of the League of Nations. The draft convention adopted at this conference prohibited the use of white lead and sulphate of lead in the internal painting of buildings, with certain exceptions, six years from the closure of the Conference. The Municipal Council of Liege has adopted resolutions prohibiting the use of white lead in inside and outside painting work done for the municipality." (*Lancet*, Jan. 27, 1923, i, 5187, p. 214.)

Tests for Lead Poisoning

In discussing the need for an early diagnostic sign for lead poisoning Craik states (*Brit. M. J.*, Jan. 20, 1923, 3288, p. 103) that in thirty cases of all kinds he has seen wrist-drop only once. He says also that "in the absence of serious anemia, punctate basophilia is more likely to be caused by lead than anything else," and suggests "that diagnosis should depend not on gross signs, but on appreciation of suspicious symptoms and investigation of blood and urine. Whereas examination of the urine is a tedious process, the blood film is quick, easy, and almost as reliable." Both signs disappear about the same time.

The author divided cases of lead poisoning in four groups: (1) Industrial, invariably detected by experienced medical men at the works; (2) general practice cases, mainly occupational among painters, plumbers, etc.; (3) criminal, diachylon taken with the intention of producing abortion; (4) domestic, resulting from the contamination of food and drink. Occupational cases among painters seem to be increasing, largely as a result of the use of dry sandpapering. Craik states that he has known of a healthy man who contracted a case of acute plumbism in this way in a period of three weeks.

Vaccination for Postal Employees

"The Postmaster General has arranged for the entire personnel of the postal system, numbering 333,000 employees, to be given free vaccination against smallpox and typhoid and paratyphoid fever. The Secretary of the Treasury has authorized all stations of the U. S. Public Health Service throughout the country to accommodate postal workers on their request. It is estimated that 90 per cent of the railway mail service, which has 23,000 members, have been vaccinated." (*Monthly Digest*, N. H. C., Feb. 1923, iii, 2.)

Relationships of Vaccine Virus

Von Heelsbergen in a recent communication (*Centr. f. Bakt. Orig. Bd.* 89, p. 173) maintains the identity of the viruses of variola, vaccinia and spontaneous cow-pox with that of *stomatitis pustulosa contagiosa equi*, which in turn he believes to be closely related to the viruses of fowl pox and fowl diphtheria.

Light Waves in Relation to Rickets

Recent investigation has established the fact that white rats can be regularly protected against rickets by means of sunlight or artificial rays produced by the mercury vapor quartz or carbon arc lamp. Alfred F. Hess and Mildred Weinstock, New York, (*Journal A. M. A., March 10, 1923*) have attempted a closer analysis of the spectrum in order to ascertain more precisely which waves exert this remarkable protective action. These experiments showed that in order to be of value in rickets, ultraviolet waves must have a wave length not longer than 302 or possibly 313 millimicrons. This renders light that has passed through ordinary window glass of no therapeutic value in this disorder. The experiments serve to emphasize the remarkable specificity of wave lengths of light in relation to ricket. Wave of 324 millimicrons in length have little or no value in protecting against rickets, and waves of 302 millimicrons are of great value in this respect. This signifies that a difference of about thirty millionths of a millimeter in wave length suffices to render ultraviolet light effective or ineffective. The experiments also indicate that the rays do not have to impinge directly on the surface of the skin. Clothing must be regarded as other filters which screen the effective rays, namely, according to their texture or thickness. Furthermore, a direct quantitative relationship exists between the nature of the material and the duration of exposure to sun's rays or artificial sources of light. Black clothing will absorb more of the effective ultraviolet rays than similar white material. The spectrum would seem to contain not only rays which can prevent or cure rickets, but also longer rays which are able to neutralize or inhibit the effect of these beneficial radiations. This phenomenon points to the need and the value of an analysis of rays employed in heliotherapy in rickets, tuberculosis, and other diseases. It would seem to indicate that this valuable therapeutic agent will be used with the employment of filters to absorb radiations which may be not only ineffective but also disturbing.

Labor Laws in the U. S.

A convenient compilation and comparison of the provisions of labor laws in the United States has been made by Hookstadt. (*Monthly Labor Rev., Jan. 1923, xvi, v, p. 158.*)

Theory of Activated Sludge

Bushwell and Long support the biological in preference to the mechanical theory regarding the nature of the activated sludge process. (*Eng. News-Record, Jan. 18, 1923, 90, 3, p. 119.*) One serious objection to the mechanical or colloidal theory, which assumes absorption of the colloidal dispersed matter by the sludge present, is, that as far as the authors have been able to determine, both the colloidal particles in the sewage and the activated sludge particles are negatively charged. They present a table based on a microbiological study of activated sludge showing that as the process develops there seems to be a succession or addition of forms beginning with a predominance of the minute flagellates and ciliates. Following stages are characterized by Peritrichs, Holotrichs, and Heterotrichs; zoögelic masses of the Chlamydo bacteriaceae and Nematodes; and Polytrichs.

The authors propose the following statement of the theory of activated sludge:

Activated-sludge flocs are composed of a synthetic gelatinous matrix, similar to that of Nostoc or Merismopedia, in which filamentous and unicellular bacteria are embedded and on which various protozoa and some metazoa crawl and feed. The purification is accomplished by digestion and assimilation, by organisms of the organic matter in the sewage and its resynthesis into the living material of the flocs. This process changes organic matter from colloidal and dissolved state of dispersion to a state in which it will settle out.

Sewage Treatment in England

A series of three articles in the *Engineering News-Record* (February, 1923, xc., Nos. 5, 6, and 7) deal with problems of administration and policy regarding sewage treatment in England, the status of older types of treatment, and the outlook for the activated sludge method. These papers provide a brief and up-to-date account of English procedure relating to sewage, its treatment, and disposal.

Analysis of Cod Liver Oil

In search for that constituent of cod liver oil which influence the mineral metabolism, Zucker has succeeded in producing a preparation which after a dilution of 1:1000 is as active in the treatment of rickets as the original cod liver oil. (*Proc. Soc. Exper. Biol. & Med., 1922, xx, 3, p. 136.*)

Dewatering Sludge

The use of a 36 inch Oliver vacuum filter for dewatering sludge is reported by Hatton. (*Eng. News-Record, Feb. 1, 1923, xc, 5, p. 203.*) The experiment shows "that when the sludge was properly conditioned by raising its temperature before reaching the filter from its normal (whatever that might be) to a point from 120 to 180 degrees F. and keeping the pH value within the limits of 3.3, to 4 by means of sulphuric acid the filter would produce about 65 pounds of sludge per twenty-four hours per square foot of filter cloth surface, reducing the moisture content from 99 to 80 per cent, and that it would do this all the time regardless of the character of the rawsludge."

Administration of Health Departments

The chapter from the forthcoming Report of the Committee on Municipal Health Department Practice, dealing with the administration of health departments has been printed in the *American Journal of Public Health*, (March, 1923, xiii, 3, p. 163.)

Vitamines in Ice Cream

In a study of the vitamin content of ice cream by A. H. Smith (*J. A. M. A., Dec. 30, 1922, lxxix, 27 p. 2221.*) the cream was tested for accessory food factors before freezing and the same tests (with white rats) repeated on the same mixture after it had been frozen. The results indicate that freezing had no noteworthy effect on the content of vitamin A and vitamin B. The cream made from pasteurized products was found to have no significant quantity of vitamin C.

Etiology of Pellagra

Jobling and Arnold (*J. A. M. A., Feb. 10, 1923, lxxx, 6, p. 365*) report isolating from the feces of pellagra patients a fungus-producing, fluorescent substances. Fifty nonpellagrous persons were studied and in no instance was this fungus recovered from the feces. This fungus apparently belongs to the *Aspergillus glaucus-repens* group. Mice inoculated with the fluorescent substance and exposed to the light "soon developed edema and reddening of the ears, and swelling and edema of the eyelids."

The authors state that it is not their "desire to claim or even to suggest" that they have discovered the cause of pellagra. Their findings are of some interest, however.

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The Germ of Influenza

THE results of the bacteriological studies which were carried out during the height of the influenza pandemic of 1918 were profoundly disconcerting. We found that what we thought we knew about the part played by the Pfeiffer bacillus was erroneous. We learned that this organism, with the Pneumococci and the Streptococci, was of importance as a secondary invader; but it became increasingly clear that the primary causative organism which produced epidemic influenza and opened the road for their lethal activity was more elusive than ever. Claims in regard to the part played by a filtrable virus and by globoid bodies reported from England¹ were not convincing and it appeared that another world outbreak of this disease might find us as unprepared as did the last.

Meanwhile, however, there was being conducted at the Rockefeller Institute a series of investigations, by Olitsky and Gates, which have step by step aroused the conviction that a light has dawned which is not likely to be wholly extinguished by the mists of criticism. These investigators have shown admirable scientific caution in in-

terpreting their results. In their most recent communication² they say that to claim the organism they have studied "to be the bacterial incitant of epidemic influenza" "does not seem desirable." "It has seemed wiser, therefore, merely to report the experimental facts, and to defer decision of the precise relation which *Bacterium pneumosintes* bears to epidemic influenza until further experience is obtained."

Yet the experimental facts recited are full of significance. Olitsky and Gates have cultivated, by the Smith-Noguchi method, globoid bodies, of a filtrable nature, which they believe produce in rabbits the typical blood picture of influenza with a definite and characteristic injury to the lung tissue increasing specifically susceptibility to secondary invasion by other organisms. The blood serum of rabbits infected with this organism was found to contain specific antibodies against the inciting cause. Similar antibodies were found in the serum of human beings who had recovered from influenza but not in the blood of control individuals. Vaccination with killed cultures produces in the human subject the specific agglutinins active against *Bacterium pneumosintes*.

1. Bradford, J. R., Bashford, G. P., and Wilson, J. A.: *Quart. Jour. Med.*, 1918, xii, 259.
Gibson, H. G., Bowman, F. B., and Connor, J. J.: *Brit. Med. Jour.*, Mar. 22, 1919, 331.

2. Olitsky, P. K., and Gates, F. L.: *Science*, N. S., lvii, Feb. 9, 1923, 159.

3. Olitsky, P. K., and Gates, F. L.: *Jour. Exper. Med.*, 1921, xxxiii, 125, 361, 373 and 713; 1921, xxxiv, 1; 1922, xxxv, 1, 553 and 813; 1922, xxxvi, 685.

The chain of evidence is surely a suggestive one. To the name given the new organism, bacteriological taxonomists will object, for it certainly does not belong to the genus, *Bacterium*, as now generally recognized. This is a very minor point, however. The essential findings have been recently confirmed by Lister in South Africa⁴. If other workers can find this organism, and, above all, if the disease can be produced by its use in the human subject—a step not taken by Olitsky and Gates—one of the most brilliant victories in the history of medical science will have been achieved.

Pay Clinics and Medical Costs

THE initiation of pay clinics some years ago at the Boston Dispensary, and their more recent development in New York City, Cleveland, Chicago, and elsewhere, have been called to more general attention by the transformation last year of the teaching dispensary of Cornell University Medical College into a pay clinic, and public response to this experiment.

The pay clinic differs from the ordinary out-patient clinic in that fees of more than nominal amount are charged—usually approximating the cost of service—and in that the medical staff is salaried. Such clinics aim to reach self-supporting individuals and families of moderate means who cannot pay for expert medical care, but who do not wish to accept charity, either from individual doctors or from institutions. Two fundamental questions are thus raised: Is it the duty and function of an organized medical institution to practice medicine, as distinguished from performing a charitable service? Can the medical service rendered patients at such an institution be made substantially better than that which they could secure in the private offices of physicians at rates which they can pay?

From the standpoint of the general public, the center of interest is largely in the second question. It would be well if considerable study were devoted by both medical and lay groups to matters of fact involved in this problem. Very little information is available as to actual cost at private rates of the treatment of such ambulatory diseases as come to out-patient clinics.

The total cost of treatment of a disease throughout its course, not merely the cost per visit to the doctor's office, is the vital element which must be considered by the family from whose annual budget the expenditure must be made. It is likewise essential to know the relative proportions in the population of those groups whose incomes and family responsibilities do not

enable them, without trenching upon shelter, food, clothing, and other necessities of life, to meet this expense for adequate treatment. The problem is complex, and each community and each part of the country will show varying proportions of the different economic groups, as well as divergencies in medical fee rates and in extent of existing hospital and clinic facilities. Any answer to the question of the extent of the need for pay clinics invites the attention of economists and statisticians, as well as of medical men and public health officials. Broad and careful study is needed of the types and costs of medical treatment, and their relation to the means of various groups in the population.

Paternalism in Preventing Disease

THE county health officer system in Vermont has been for some years an outstanding example of the best public health practice in this country and it is with deep regret that we learn of the wiping out of this excellent system by the 1923 legislature. Personal grievances and a jealous parochialism on the part of certain small town legislators are responsible for this unfortunate action, which puts the public health campaign in Vermont back for some fifteen years. Under the old plan the rural districts of Vermont enjoyed the services of a group of excellent, well trained health specialists but in the future these county health officers will be replaced by town officials appointed by the selectmen. The feebleness of the safeguards thus provided may be imagined from the fact that there are 102 towns in the state which are lacking even a physician.

In considering the probable effects of such a reaction against "paternalism" one is reminded of a passage in an address by Royal Meeker, recently appointed Commissioner of Labor for the State of Pennsylvania, in which he discusses the ideal of an "independent and self-reliant super-race of tuberculous, rheumatic, and malarial cripples, tottering unsocialistically along the socialized highways, reclining self-reliantly upon the communal benches of the public parks and staring belligerently at the communal trees, flowers and shrubbery, enjoying defiantly the social light of the great unsocialized sun, drinking individualistically the socialized water bubbling from the public fountain, in adversity even eating privately the communistic bread provided in the community almshouses, and, at last going expensively to rest, independently and self-reliantly, in a socialized or mutualized graveyard full of little individualistic slabs erected to the memory of the independent and self-reliant dead.

4. Lister, S.: So. African Med. Rec., Nov., 1922.

Nursing Education and Physicians

A SOMEWHAT vehement attack on the nursing profession in the current issue of the *Medical Review of Reviews* would not be particularly deserving of attention had advance sheets not been released to the daily press with the avowed intention of starting a campaign "to restore the mental equilibrium of the nurse and to put her in her rightful place in the shade." In this article all the misdeeds of the few, and there are some dregs in every profession, are attributed to the many; but perhaps the most significant thing is the author's conception of a nurse, that of an obedient and agreeable fifteen dollar a week servant who can be taught to read a thermometer and count a pulse. It always seems to the public health worker somewhat absurd that this sort of idea should survive. To quote from the recent report of the Rockefeller Committee on Nursing Education, "We have sought during the last twenty years for a missionary to carry the message of health into each individual home; and in America we have found this messenger of health in the public health nurse." Furthermore, as the report says later on; "That an improvement in quality, as well as an increase in the number of public health nurses is fundamental to the complete success of the public health movement, is a point on which the Committee on Nursing Education found competent authorities to be agreed."

We are not particularly concerned in regard to any harmful influence which such attacks as that in the *Medical Review of Reviews* may have on nursing or nursing education. The public is coming to understand these matters pretty well and any such effect is likely to be negligible. What we are concerned about is the possible reaction against the medical profession which is likely to follow exhibitions of this kind; and yet such a reaction would be quite as unjust in one direction as the *Review of Reviews* article in another. The real leaders of the medical profession include Dr. Welch and Dr. Biggs, Dr. Holt, Dr. Connor, Dr. Edsall, Dr. Winford Smith and Dr. Parnall, who signed the Report of the Rockefeller Committee and have always generously and far-sightedly devoted their time and energy to the upbuilding of the highest standards of nursing education. They include such men as Dr. Robert W. Lovett who, as chairman of a special committee on nursing education and service, made a splendidly statesman-like report at the A. M. A. Congress on Medical Education in Chicago last month and recommended the cooperation of physicians and nurses in the standardization and improvement of nursing education. This is the real voice of the medi-

cal profession, the voice which we have all learned to honor and respect. The physician who is out "to put the nurse in her place" is merely a small-minded individual who has strayed by mistake into a noble calling.

More Twilight Zones in Public Health

THE public health campaign is suffering a little from the handicap of too much popularity. There is a general tendency to leap on to the band wagon which is at times a trifle embarrassing to the original occupants.

In many states and many cities educational authorities are quite naturally seeking not only to expand their activities in the field of medical school inspection, but to extend their supervision downward to the protection of the pre-school child. There are strong arguments in favor of a close correlation of the general campaign against tuberculosis, or against mental disease, with the respective state and county institutions which furnish domiciliary care for these disorders; and such institutions are frequently operated by special commissions rather than by state departments of health. In several states special commissions have been created, outside the state department of health, to deal with the broad problems of stream pollution; and it is quite obvious that such problems do involve certain interests other than those of health protection.

On the other hand, it seems clear that if the health of infants is to be in charge of a special child welfare department, the health of school children under the board of education, the health of factory workers under a labor board, the campaign against tuberculosis in the hands of a state tuberculosis commission, the campaign against mental disease in the hands of a commission for mental disorders, the principal problems of sanitation in the hands of a river conservancy board, the control of milk supply in the hands of a special milk board or a state department of agriculture, there is very little left for the health workers of the community to do, except perhaps to control acute epidemic disease, a function which no one else has yet shown a tendency to covet.

The problem involved in the administrative organization of the public health campaign are highly complex ones and demand a high degree of statesmanship for their solution. There will always be the tendency to create *ad hoc* authorities for dealing with particular fields of preventive medicine and there are often strong arguments in favor of such a step. Yet after all the individual who passes through infancy and childhood and through factory life is one individual all the time

The problems of protecting his health are interlocking problems, as is evidenced by the tendency for child welfare work and tuberculosis work to expand until they include the whole field of public health. There is a real danger in too much diffusion of authority, in undue specialization, and in the organization of staffs of health workers under authorities whose main interest is not health interest and whose knowledge of health problems can not always be relied upon to produce an atmosphere conducive to the most effective service.

Tuberculosis in Industry and the General Tuberculosis Rate

THAT certain factors have been favorably affecting the death rate from tuberculosis is evident, for the mortality rate from this disease continues to decrease each year. Many different opinions are put forth as the reason for this remarkable decline and although it is a rather difficult and perhaps impossible matter to ascribe the effect to one cause we may do well by saying that in all probability many concurrent causes have been working together to produce this most welcome result¹. The generally favorable trend of the tuberculosis death rate must not however blind us to the fact that there is one field at least in which a great deal of work still remains to be done.

Industry, either directly or indirectly, contributes greatly to the mortality from tuberculosis. It is only necessary to glance at a table showing the mortality from this disease among males and females to be brought to a full realization of the fact that the excess death rate of males over females corresponds to the working age period of the industrial male population. And special studies have clearly shown that we may truly charge industry and industrial conditions with playing a leading rôle in fixing the tuberculosis rate of a large portion of the employed population.

Many industrial factors have been brought forward as the cause for the high tuberculosis rate in industry. Among these may be mentioned fatigue, posture, and poor ventilation but probably the one of most importance is atmospheric dust. A comprehensive American report on the mortality from respiratory diseases, published some four

years ago², occupations which were the chief offenders in contributing most largely to the mortality from tuberculosis. Since this time two other statistical studies have been published; of a more intensive type. In an investigation of the mortality from tuberculosis among polishers and grinders in an axe factory³ it was clearly brought out that the death rate from pulmonary tuberculosis for the years 1900-19 was 19.0 per 1000 as compared with a rate of 1.7 for the male population of the state of Connecticut. The most recent contribution⁴ which was originally undertaken in behalf of a committee appointed by the National Tuberculosis Association, was made among the workers in the granite stone industry of Barre, Vermont, and deals in detail with the environmental conditions under which the workers of the district live as well as with their anthropometric status. In spite of the fact that conditions under which these people live are far above the average and that the anthropometric records show them to be of superior physique, they suffered from a tuberculosis death rate of 4.3 per one thousand in the years 1895 to 1899, and this has increased to 10.6 per one thousand for the years 1915-1918. It is clear then that, although the general mortality from tuberculosis is on the decline, there is one industry, and study would probably reveal others, in which the mortality rate is not on the decline but rather on the incline.

Endemic Amebic Dysentery—The Extent of this Infection

THE recent report of apparently indigenous cases of amebic dysentery in Connecticut¹ calls attention once more to the question of the extent of infection with *Endamoeba dysenteriae* in the northern United States. Kofoid and his co-workers² have pointed out the frequency with which this protozoön can be isolated from the stools in members of military units not suffering from clinical dysentery. At the New York Debarkation Hospital, of the men examined who had seen overseas service 13 per cent, and of men who had not been abroad 4 per cent, gave positive results when examined for this parasite. More exhaustive studies, involving repeated stool examinations, made at Berkeley, Cal., on similar groups of soldiers gave the astonishing figures of 67 per cent and 26 per cent, for overseas and home contingents respectively. The groups examined in these studies were not typical of the

1. Hoffman, Frederick L.: Mortality from Respiratory Diseases in Dusty Trades, Bul. 231, U. S. Dept. of Labor, Bureau of Labor Statistics.

2. Emerson, Haven.: Cause of the Rapidly Increasing Fall of the Tuberculosis Death Rate in the Last Five Years: Amer. Rev. of Tuberc., 1922, vi, No. 4, p. 282.

3. Drury, W. Herbert: The Incidence of Tuberculosis among Polishers and Grinders in an Axe Factory, Public Health Reports, February 4, 1921.

4. The Problem of Dust Phthisis in the Granite-Stone Industry, by Frederick L. Hoffman, Bul. 293, Washington Government Printing Office, 1922.

1. Three cases discussed by Prof. F. G. Blake and others at meeting of staff of New Haven Hospital, Dec. 13, 1922, with report on epidemiological studies by Prof. I. V. Hiernick.

2. Kofoid, C. A.: Trans. Amer. Gastro-Enterological Assoc., 1919, Kofoid, C. A. and Swezy, O. Am. Jour. Trop. Med. I, 1921, 41.

army population as a whole presumably they were made up of men invalidated for some cause or other. It would seem, however, that infection with amebic dysentery must, since the war at least, be far more widespread than has been suspected. It will be wise to be on the lookout for this disease and to secure stool examinations in any case presenting suspicious symptoms.

The Standardization of Railway Quarantine

FROM time immemorial, disease has followed the paths of travel. Plague traversed the caravan routes and dogged the steps of the Crusaders returning from the Holy Land. The development of modes of rapid inter-communication, by land, by water, and by air have in themselves only served to multiply our dangers and to facilitate the spread of infection at still swifter and more alarming rate.

Modern public health science is, however, awake to such dangers. The Bureau of Epidemic Intelligence of the Health Section of the League of Nations, for the first time in history, promises to give us the reliable information necessary for the most effective maritime quarantine; and recent studies of the United States Public Health Service are likely to lead to substantial improvements in the fumigation of ships.¹ The problems of railway quarantine are in some respects far more difficult; but here, too, substantial progress has been made as is set forth in an admirable recent bulletin by Dr. T. R. Crowder.²

A Standard Railway Sanitary Code, approved in May, 1920, by the Conference of State and Provincial Health Officers, and later by the Public Health Service, has now been officially adopted by twenty states and in essence its provisions are incorporated in the last revision of the Interstate Quarantine Regulations issued in May, 1921. By these regulations the transportation on railway trains of cases of plague, cholera, yellow fever, typhus fever, and smallpox is wholly prohibited and other communicable diseases are subject to rigid supervision. In the case of the diseases transmitted by the secretions of the respiratory tract³ it is, for instance, provided that persons affected with such disorders must be placed in a compartment separate from other passengers and must be accompanied by a properly qualified nurse or other attendant who shall comply with the provisions of the following regulations:

(a) Communication with the compartment in which the patient is traveling shall be restricted to the minimum consistent with the proper care and safety of the patient.

(b) All dishes and utensils used by the patient shall be placed in a 5 per cent solution of carbolic acid or other fluid of equivalent disinfecting value for at least one hour after they have been used and before being allowed to leave the compartment.

(c) All sputum and nasal discharges from the patient shall be received in gauze or paper, which shall be deposited in a paper bag or in a closed vessel and shall be destroyed by burning.

(d) Said nurse or attendant shall, after performing any service to the patient, at once cleanse the hands by washing them in a 2 per cent solution of carbolic acid or other fluid of equivalent disinfecting value.

Similarly effective regulations apply to the intestinal diseases, typhoid fever, paratyphoid fevers and dysentery.

The general dissemination, among physicians and among the laity, of information in regard to these standard regulations would go far toward securing the compliance with their provisions which is so clearly essential for the public safety.

Health Trends in Massachusetts

THE last annual report of the Department of Health of Massachusetts reflects in an interesting way the general trends of public health work as they manifest themselves in the commonwealth which for over sixty years has played a pioneer part in the field of public health.

The progress of sanitary science is well indicated by the fact that in the year 1921 there was but a single epidemic of any magnitude, an outbreak of typhoid fever with 129 cases and seven deaths apparently transmitted by unpasteurized milk. Diphtheria, however, continues to be a serious problem and the popularization of the Schick test is urged as one of the most essential points in the immediate public health campaign.

A particularly interesting feature of this report is a four-page bibliography of papers written by members of the State Department of Health during the year, a reminder that the better health departments are in increasing degree becoming institutions for the advancement and dissemination of knowledge and not merely for the administrative execution of the laws.

A Correction

Many readers of THE NATION'S HEALTH have noticed, as the editors have noticed, with contrite regret, that the statistics for the mortality of New York City in the leading editorial for March were headed "Deaths per 100,000" instead of "Deaths per 1,000" which was what they actually and obviously are.

1. See Public Health Reports for Nov. 3 and for Nov. 24, 1922.
2. Communicable Diseases and Travel. Public Health Bulletin No. 129, U. S. P. H. S.

3. Diphtheria, measles, scarlet fever, epidemic cerebrospinal meningitis, anterior poliomyelitis, mumps, whooping cough, influenza, pneumonia, epidemic encephalitis, septic sore throat, rubella or chicken pox, or any person known to be a carrier of these diseases.

HEALTH IN INDUSTRY

*Problems Concerning Factory Sanitation,
Industrial Medicine, and the Health and
Efficiency of the Industrial Worker*

Health of New Bedford Child Laborers

BY HUGH GRANT ROWELL, M.D., DIRECTOR OF HEALTH AND HYGIENE, NEW BEDFORD SCHOOL DEPARTMENT, NEW BEDFORD, MASS.

MANY articles have appeared recently regarding the dangers to the future of the race if the policy of permitting children of fourteen to sixteen to perform certain tasks is continued. In this connection the point is frequently made, perhaps at times not without justification, that examinations for working certificates by such children are most cursory, in fact, done with exceeding carelessness. New Bedford and Fall River are constantly mentioned as cities in which the number of laboring children is large and I am sure an explanation of the system I have installed for handling such a situation will prove of some interest and value.

At the outset let me state that I am not as yet convinced of the actual damage done to these children by permitting them to go to work, provided the control of the whole matter is in suitable hands. I hope in the near future to show some figures which will prove this idea, but the series is not yet large enough to warrant publication.

Before beginning directly on the children of this age, we must consider whether any health foundation has been laid in the early years of school and in New Bedford we find the beginning of school health work in 1910. In 1916 more time was devoted to this phase of education, and dental clinics instituted. Since that time studies of posture, elimination of dust hazards—as from chalk—lighting studies, and a sound system of school nursing have been a few of the activities. School clinics, at first a necessity, were later absorbed by the out-

Work, per se, need not be regarded as harmful to the child. Under given conditions the yellow "Promise of Employment" card may even constitute a safeguard, assuring that the labor of children between the ages of fourteen and sixteen shall be restricted to approved tasks, guaranteeing the child a certain quality of employer.

The system that now obtains in New Bedford protects child laborers by periodical physical examination, correction of physical defects, and, through the continuation school, provides for cumulative health record and supervision of progress both in mental and physical development.

patient department of the local hospital. Health habits have been taught both as such and as subject matter in other courses, as in the making of health posters in drawing courses. Weighing and measuring of pupils were encouraged and many schools established funds and bought the necessary scales. This year all schools use scales. Close affiliation with a splendid tuberculosis clinic locally resulted in the establishment of fresh air classes and these relations at present permit the services of a chest expert in any cases which appear to need such attention. Experience with part-time medical inspection proved neither better nor worse than

elsewhere. Gradually a desire for a full-time medical director arose and this year has seen its fulfillment. Conditions previous to employment are probably as favorable locally as is possible, in view of the economic status of the group, a factor which invariably influences the value of any type of health work. To advise certain innovations in diet is one thing, but there must be funds to carry out such advice.

Our general plan of handling these children is this—a definite office hour has been established daily except Sunday, at a time apparently the most convenient for all concerned. With rare exceptions, this hour is strictly kept. On arrival the children present the necessary birth certificate and school record, with yellow "Promise of Employment" card. A form known as Form M, provided by the State Bureau of Labor and Industries, is partially filled out by the clerk who then sends the child upstairs to the doctor's offices. These consist of a large hall in which the eye and ear tests are done and which, unfortunately, must also serve as a waiting-room. In practice, however, this is not as serious a difficulty as might be expected, since one rapidly learns methods of weeding out the child who learns the eye chart. An examining room, with three curtained dressing rooms opening into it, provided with excellent light, and with a sink which may be used for laboratory purposes, permits careful examinations yet avoids delays of waiting for the child to prepare for inspection.

On arrival the child presents the

cards, including a cumulative health record installed this year and which contains a record of each examination and the extent of the same, this being curtailed by the lack of right of the examiner to remove clothing from a school child. In many cases permission for a complete examination has been obtained and if so, this is on the record. A good past history of common diseases, eyes and ears, height and weight, defects and treatment, is all available on this card and at once gives the examiner a fair idea of what may be expected.

The eyes and ears are first tested, then the head, nose, throat, and teeth are inspected and findings noted. Advice is given regarding the necessity of correcting such defects as are found.

From now on the procedure differs, depending on whether the child is male or female.

Assuming it is a boy, he is sent into the dressing-room and told to strip to the waist. He is then given a good chest examination, and any orthopedic defects noted. The presence or absence of hernia is now determined. Provided he has satisfactorily met all requirements, is within ten per cent of the Wood weight tables, (which are framed on the wall) and his general history is good, he is passed for his job.

If the candidate is a girl, we must make certain concessions to this particular age and, while scientifically it may be wrong, it is unwise to request a girl of this age to remove her waist, even with a nurse present and conditions made as ideal as possible, because the public has not yet been educated up to the idea, and the disfavor with which a more radical type of examination is met in these cases might prove the undoing of work which will probably later be considered in a different light. Therefore the girls are examined as well as possible, removing only coats, etc., the examination being made through the waist. I do not believe this method satisfactory but it is better than nothing and should we have reason to require more adequate examination in special cases we can of course demand it. A nurse is always present at any examination of a girl.

A certain percentage of children will be found unsuitable for work, especially in the cotton mills, and the greatest difficulty is from defective eyesight. If the defect is not over 20/30 in one eye and 20/40 in the other, the child is allowed to go to work on a provisional certificate, be-

ing given till a week from the coming Saturday to have the eyes corrected and return for reexamination and unconditional certificate. These cases are checked by a follow-up system if they do not report. The whole proposition is carefully explained as a protection to them from danger and meets good response. No child blind in one eye or whose vision can not be corrected to normal or nearly so, is permitted to work on any job near machinery and in the continuation school which the child attends certain hours per week, similar precautions are observed.

Children with hernias are rare. They are kept from work which requires lifting, and operation is suggested.

Cases of former chest diseases, such as arrested tuberculosis are frequently referred to the Tuberculosis Clinic for opinion since in many instances they have been patients there. It is interesting to note that in view of local experience they do not seem to believe work in the cotton mills, with the exception of a few jobs, will harm the lung, in spite of certain popular beliefs. Such cases are carefully watched and given thorough re-examinations at each change of work.

Other defects are treated as indicated.

The Child with Defects

The problem of what to do with the children who must be turned down and who must find work is partly met through cooperation of local clubs and firms, certain of whom permit us to refer boys to them under these conditions.

So much for the first examination. The child goes to work and at the same time attends certain sessions in the continuation school. Here we have just introduced health work. A nurse, previously on my staff, has been transferred and records of weights and heights will be kept hereafter. She will be supplied with a list of minor defects found in the examinations and part of her work will be to assist in remedying them. A new course in home nursing and in infant hygiene is beginning and instruction in personal hygiene will likewise be taught. Thus the health work follows the child through these two years.

One important policy in continuation schools is to encourage return to school for all children who have begun to be sorry they did not continue their education, and thus the child is often brought back to the school health system.

Many of the children do not, for various reasons, hold their jobs for a great length of time. At each change of job they returned to the office for re-examination. Just how extensive this examination is depends on certain findings. In all cases the eye, ears, height, weight, throat, and teeth are examined. Should the record of other examinations, kept on file in the office, and always examined at each reappearance of the child, prove that weight was increasing and history prove good health, the chest would not be re-examined usually. However should there be the slightest indication for another examination, it would be carefully done. The reason for not doing a routine examination each time is that each child must be treated as an individual case and we must admit that frequent inspection is resented, especially if, as is often the case, an interval of only two to four weeks has elapsed. The tendency in this office is said to be to repeat examinations too often, which I cannot regard as an adverse criticism.

Nothing has been said so far about the mentally deficient child. Here, we find he almost steers himself. Few apply for work in the mills, seeking usually the jobs that require strength rather than mental development. Often they seem to be a somewhat restless type of labor and do not remain particularly long on any work. We have them fairly well sorted out in the school, having the advantages of our own full-time psychologist in the department, and certain classes for special instruction when indicated, so that the school record usually tells us what the mentality of the candidate for a working certificate may be.

When I speak of the system of this office, it is safe to call it the New Bedford system, since less than 1 per cent of the children go to private physicians for working certificates. From August 1 to January 1, 1925 cases were examined, some of whom came in several times, so that the actual number of individuals is less. Nurses from the various districts serve in rotation as office nurse and the defectives are usually known to them by sight, thus frequently giving us a better history than the records at present can give, though it can be seen that the present record system will soon care for this adequately.

This system has met the approval of state and local authorities as covering the situation amply and satisfactorily. Admitting that it is not perfect, it certainly makes the yellow "Promise of Employment" card a

guarantee of a certain quality of employee and it protects the child from the dangers of its own ignorance and its physical disabilities. That we may attempt higher standards of examination in the future is possible, as in the case of the girls, and in routine re-examinations of a complete nature, but this must be as a result of a campaign of popular education and it is my personal belief that our present findings are fairly satisfactory.

In summarizing we must remember

that children between fourteen and sixteen are restricted by law to certain tasks which should be without danger to the physically normal person; that in New Bedford an attempt is made to build up the health and care for it from the first entrance to school; that each child that goes to work is given a thorough examination and passed for a particular type of work only; that each change of work means re-examination as extensively as indicated; that during the two years at

this time adequate watch of the child's health is kept through the continuation school health work under the same direction as in the general school system; and through cumulative records the general progress of the child is carefully watched.

Under these conditions I believe we are conserving the health of the working child and as I hope to show in a later paper, results seem to be gratifying as far as can be determined at present.

Selling Better Health to N. C. R. Employees

By F. G. BARR, M.D., COMPANY PHYSICIAN, NATIONAL CASH REGISTER COMPANY, DAYTON, O.

ABOUT thirty years ago, just after the National Cash Register Company had placed an improved type of cash register on the market, many were returned as defective. As the registers had been correctly designed, a careful investigation was made into the manufacturing processes; as a result production methods were perfected so as to make it practically impossible for a register to leave the factory with mechanical defects.

Soon after this, an official of the company, while passing through the factory at the noon hour, noticed a woman employee heating her coffee on a radiator. On making inquiry, he learned that the women were forced to eat cold lunches at their benches, there

being no place where they could get a hot meal. That this practice had a bad effect on their health was obvious, and steps were immediately taken to remedy the situation.

These two incidents marked the beginning of the health work among our employees. The company officials realized that they had been giving most of their attention to the product and not enough to the producer. Now the National Cash Register Company not only has three modern dining rooms for employees, as well as many other welfare features, but has also a trained medical force constantly endeavoring to "sell the employees" on the importance of personal hygiene and preventive medicine.

The report of the activities of our

medical department shows the extent of the work that is being carried on.

In 1922, 3,895 new applicants were examined and 104 rejected; 794 were examined for transfer; 15,409 received examinations, treatments, consultations and vaccinations; 3,199 visiting nurse calls were made, 26,648 other cases including injuries, minor injuries, surgical dressings, and x-rays were handled; 8,033 physiotherapy treatments were given, and the dental dispensary handled 9,303 applicants—a total for the year of 50,958 calls for service.

Our records show that the average number of hours lost per employee in 1922 on account of sickness, not including accidents, was 13.5 hours. Our sick list is checked each week by the foremen who send their reports to this department, giving the man's name, check number and amount of time lost on account of illness. We feel that is as accurate a method of checking sickness as is possible in a factory. This record, the best in our history, may perhaps be taken as evidence that selling health to employees is surely a worth-while proposition.

When it is considered that more time is lost by wage-earners through sickness than any other cause, it appears strange that it should be necessary to be continually educating either employer or employee on the value of health. Many employers still look upon health work merely as a welfare feature. But it goes a great deal further than that, for health has a direct bearing upon the quality of the product and the output of the factory. Then, too, the average employee is ignorant of personal hygiene and seldom realizes the value of disease prevention work to himself and family.

The selling of health must begin in the medical department, for so long



The employees of the National Cash Register Company receive a warm, well balanced noon meal. All food supplies are tested out in the company's research department.



Every employee has a physical rating. Those who are found to be under weight are supervised by the Medical Department. Free mid-morning lunches of malted milk are served every day to this group. Those who fail to gain under a corrected regime are re-examined and other measures undertaken for their relief.

as the doctors, nurses, dentists and clerks do not act as salesmen and saleswomen meager results must be expected.

The medical force at the National Cash Register Company at Dayton, consists of three doctors, one dentist, three nurses, two treatment room men, for physiotherapy, one masseuse, and three clerks. To insure success in the work among the employees we believe that every member of the staff should have the following qualifications:

(1) A vision of the value of preventive medicine.

(2) Adaptability. Patients ranging from the foundryman or trucker to the president of the company, must receive medical care which will lead them to have confidence in the medical department. The president and other executives must not feel that it is merely a department for the laborers; nor must the trucker or foundryman feel that the department is only interested in the executives and "white-collar men."

(3) Interest in the employees' troubles, no matter how trivial they may seem from the medical viewpoint. A curt, ill-considered answer to one of these trifling questions is often enough to make the employee a confirmed "knocker," as far as the medical department is concerned.

(4) The ability to sell health as a factor in production.

(5) Honesty. There is no place in

industry for the physician or nurse who merely asks the patient a few questions, looks at his tongue, fills in a report and sends him back to work. A doctor should be discharged upon the second offense of this kind, for thoroughness is one of the first essentials of success in industrial hygiene.

(6) The medical department employee must have his heart in the work.

The selling of health should begin before the applicant is placed on duty. In our factory, the first step is a thorough physical examination given by a doctor who is not looking merely for physical defects, but who is really interested in his patient. Here the doctor should give the patient such advice about his physical condition as may be of value to him. A dental examination should also be included.

Each of our new employees attends a health and safety lecture during the first hour of his employment. He then takes a trip through the factory. He learns the health and safety hazards not only in his own department, but in others. He sees the factory as a whole, and does not feel that his work is confined to one bench. This gives him a healthful mental attitude, one of the pre-requisites of a healthy body, and shows him that his new employer is interested in his welfare.

The employee is given a well-bal-

anced noon meal, and is assured of clean food. All food is tested in the company's Research Department.

Every cook, waiter, or other employee handling food is thoroughly examined every six months, to prevent spreading of disease. Drinking water, furnished from the company's own wells, is also tested for bacteria every day in the research department.

The new employee is invariably impressed with working conditions. Five-sixths of our walls are windows, insuring good light and ventilation. Our floors are kept clean by dustless sweeping, and exhaust systems are used on all machines with dust hazards.

When the employee applies for a transfer, he is asked to report to the medical department for another thorough physical examination, given as a protection to his health.

Every six months the employee is rated, and in this rating health is of first importance. The rating is done, usually, by a foreman and a supervisor, and the employee is rated A, B, C or D, depending upon his physical appearance, endurance, freedom from illness, and personal neatness. If he receives a rating of C or D the record is referred to the Medical Department, and the employee is called for re-examination.

The employee is further impressed with the importance of good health, when he sees scales brought into his department every six months. Every employee is measured and weighed. Should he be under weight, he goes to the medical department for consultation, and is given a malted milk card. Thereafter, until his weight increases



X-ray apparatus large enough to permit chest examinations as well as bone work is provided by the Medical Department. The x-ray work is also an important adjunct to the dental department.

to normal, he receives free malted milk every morning between nine and ten o'clock. If he loses, or if his weight remains the same, we discontinue this service. In 1921, 26,600 pounds of malted milk were distributed by the company in this way, as one means for bringing home to the worker the importance of his physical condition.

Results of this malted milk service show that within four months 79 per cent of the underweight employees gained, 2 per cent remained at the same weight, and 19 per cent lost. Those in the 19 per cent class were re-examined.

Sometimes it is necessary to sell the foreman on the value of health. This is accomplished largely by sending a comparative report each month to all departments, listing the number of treatments, given by the hygiene department, physiotherapy, dental dispensary and number of cases causing lost time and hours lost. This method stimulates the interest of the foreman who is not greatly concerned about the health of his employees, and at the same time encourages the foreman who does consider health of first importance.

Bulletins, pamphlets, and lectures are a part of the program of the selling of health—especially lectures. Information on health subjects given to groups of employees is one of the best means of disseminating health material.

A visiting nurse calls daily on our sick employees. She offers advice and suggestions, and gives whatever attention may be necessary.

About equipment: Every industrial medical department should have X-ray apparatus large enough to permit chest work as well as bone work. We find the X-ray is also important in the work of our dental department.

Another important part of our equipment is the laboratory. No medical department is complete without a laboratory where urine, sputum and blood may be analyzed.

In our physiotherapy department, or treatment room, employees receive treatments of various kinds, including fomentations, electric light cabinet baths, electrical treatments of various kinds, colon treatments and massages. These treatments are especially helpful in accident cases, where massage and the application of heat lessen the time of disability.

Many times when we are unable to sell an employee directly we succeed in selling him health through his



Physiotherapy is widely employed in medical service, the measure including fomentations, electric light cabinet baths, electrical treatment, and massage.

children. Our method of doing this is in connection with the children's meetings we hold in the N. R. C. school house. More than two thousand children receive health information along with entertainment and other educational features every Saturday morning. Many of these children, in later years will become employees of the company. They will come to us educated in the principles of personal hygiene, and fully alive to the importance of preserving health and preventing disease.

At a recent meeting we brought the scales into use and weighed each child. We also sent home with each child a letter to the parents and a card giving the actual weight of the child and the tables showing the proper weight for children of various ages. It was found that 42 per cent of the boys and 34 per cent of the girls were underweight; thus bearing out the oft-repeated statement that more than one-third of the school children in America are actually underweight.

Another thing that should not be overlooked is cooperation of the city physicians. Much good can be done through cooperation with them that would be impossible otherwise. The industrial physician should realize that he is practicing a specialty—industrial medicine. Consequently he should not assume to practice general medical work. He should always be anxious to refer cases to the employees' own physician, and then,

through his diagnosis and laboratory facilities, aid the physician.

Perhaps most vital to the success of an industrial medical department is a workable program which because of its practical advantages, induces the employee to look to it, voluntarily, for medical help, attention and advice. Our experience proves the efficiency of calls; the record of 50,958 calls with 13.5 hours lost per employee because of sickness seems to justify our belief.

Part-time Cooperative Courses in Vocational Education

Rehabilitation work throughout the country gives very wide application to the principles of organization of cooperative part-time courses as outlined in Bulletin No. 78 issued by the Federal Board for Vocational Education. It is based upon pioneer work in such coordination done in Ohio by Mr. C. F. Klinefelter, regional agent for industrial education for the Central States. It is held that this form of industrial education may be installed and maintained at very little expense to the community in cities as small as eight or ten thousand population, provided they have some one dominant industry.

Brooklyn has provided homes for 259,839 persons in the last three years at a cost of \$396,000,000. It leads the whole country in plans for new buildings filed in January, 1923.

Industrial Health Becomes Community Health

Health Service Keeps Pace With Industrial Expansion at Armco

By H. S. MURAT, M.D., CHIEF SURGEON, AMERICAN ROLLING MILL COMPANY, MIDDLETOWN, O.

A STORY of the first twenty years experience of the American Rolling Mill Company recounts a period of industrial history of great moment. They began operations in Middletown, Ohio, in 1901, at about the same time that the United States Steel Corporation came into existence and absorbed practically all of the rolling mill companies. Prior to that time sheet metal, billets, pig iron, and galvanized iron were products of distinct and separate industries. The American Rolling Mill Company was one of the first concerns to bring together all these branches of the metal business.

The amalgamation process, however, involved much more than developing a huge plant wherein could be controlled quality, quantity, and cost of manufactured steel. During the period when expenditures for plant expansion aggregated a total of nearly ten and one-half million dollars, and annual sales mounted from \$281,181 to \$13,262,835, the working personnel grew from seven hundred men to something more than forty-five hundred. Meanwhile, management, too, had undergone a metamorphosis. Labor saving devices, simplification of work, and conservation of human effort kept pace with increase of tonnage.

Such health and working conditions as now obtain in the mills were not achieved over night. In the early days "Safety First" was unknown. Difficult and dangerous work, then absolutely without protection for the men, is now fully safeguarded. The elimination of deep and dangerous ladle holes, changes from bottom-pouring to top-pouring, from manhandling to mechanical handling of ingots, from narrow gauge to standard gauge transportation, have been milestones in safety for the men and have speeded up production as well.

Needless to say, the newer methods built up a new personnel. Higher standards, both of working conditions and production, have gradually evolved the workman typical of the plant, loyal, adaptable, resourceful—a type impossible to develop under conditions which disregard the human element. In between the lines of "The

First Twenty Years," the industrial story of Armco, just issued, are dramatic pictures of spectacular difficulties of operation. Accidents, messes, lost heats, stresses, mark the steps of progress from the archaic methods of steel manufacture in the early days.

Medical Service Grams

It is the growth of the Armco Medical Service that concerns this article. During the period of construction of the East Side Works, and with the completion of this modern plant in 1911, the need was felt of providing better facilities for taking care of injured employees, a department fully organized to carry a service that did not begin and end with accidents, but which would include all that was sound in industrial medical practice and welfare work. The first step was the engaging of a surgeon to care for accident cases and to study the medical needs of the company. Two small dispensaries were established, one located in the rooms now occupied by the photographic department at Central Works, and the other in connection with the time office at the East Side Works.

These two dispensaries formed the nucleus from which has sprung the Armco main hospital, colored club hospital, Central Works dispensary,

shop dispensary, the treatment room in the administration building, and the physical examination department. Ambulance stations with motor ambulance service have replaced hand conveyed stretchers, and from the limitation of caring only for accident cases the work has been amplified to include the treatment of employees for injuries or ailments beyond those provided for under state compensation. This medical service is free of charge to employees.

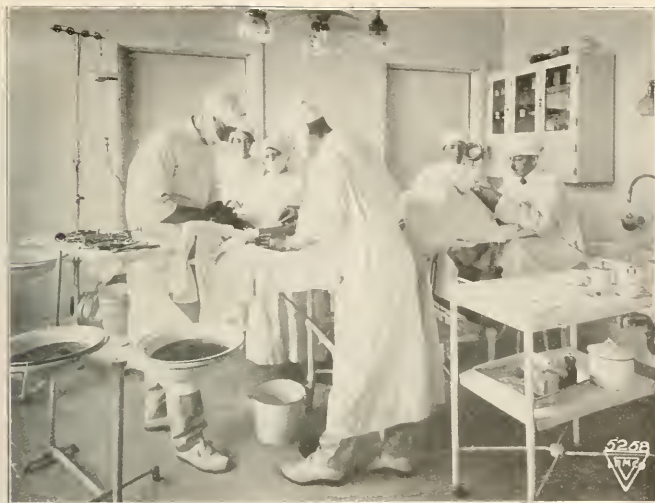
The main hospital, built in 1911, is complete in every way. It contains waiting, dressing, sterilizing, and drug-dispensing rooms, as well as office, kitchen, dining room, and living rooms for the matron. An operating room, fully equipped, and wards for patients are provided. The laboratory makes available analyses of all kinds, both microscopical and chemical, and up-to-date x-ray apparatus is at hand for supplementary examinations.

The colored club hospital is maintained in connection with the Armco colored club. It has waiting, dressing, and drug rooms, with kitchen, pantry, bath, two private rooms and two ten-bed wards. This hospital is maintained for the care of colored men in the camp. Sickness as well as accident cases are cared for among the men.

The Central Work dispensary con-



Shops dispensary at East Side. The Shops dispensaries are suitably equipped and conveniently placed for routine care of the men on the job, as well as for emergent service when necessary.



The operating room, modern in plan and administration, safeguards the lives of the men in the mills.

sists of three rooms—waiting, dressing, and consultation. It is maintained for emergency care of men, sick or injured, at the central plant.

The shops dispensary at the East Side Works was built and equipped during the winter and spring of 1918. It is in close proximity to the forging and subsidiary departments and saves the time lost in transporting the men to the main hospital—an especially important feature in emergencies as well as in the minor routine care of the men. This dispensary is a little hospital in itself, having in addition to the usual rooms a rest room for girls working in the departments near by. Special provision for the care of office employees is maintained at the general administration building. It is further equipped with modern nose and throat treatment apparatus. Electric apparatus, light cabinets, and other appliances are there to care for the ailments common to office employees.

The personnel of the medical department consists of three full time physicians, six graduate female nurses, five experienced male nurses, three clerks, a matron, and two janitors. Service is rendered to all alike, regardless of race, color, nationality, or position. The scope of the work done by the department has gradually widened. No attempt was made at first to treat the minor ailments of employees. Today the medical department administers to the needs not only of the injured man, but any and all workmen feel free to visit any of

the various dispensaries for any injury or ailment, either real or imaginary, so long as he is on the job. When the condition of an employee becomes such that it is inadvisable for him to work, or he thinks he is not able to work, he is laid off and is advised to consult his family physician. The service is not extended to any other than the working members of the men's families. The value of the service is heightened by the personal contacts with the men. It is considered that personal acquaintance facilitates the work.



Recreational and working environment suitably safeguarded.

The physical examination department is primarily a safeguard to the health of the employees. Every applicant for employment is given a careful physical examination. This is of very great assistance in giving a

man the position for which he is best suited physically and mentally. Subsequent examination and treatment are given to men whose health requires it. Not infrequently defects and incipient disease conditions are detected and corrected before they become serious and cause loss of time to the patient. Signal service in this manner has been rendered in diseases of the heart, kidneys, and lungs, so often unsuspected or ignored by the average man.

Careful records are kept of all the work done by the department. In the case of accidents, the nurse or physician who attends the injured employee takes a complete history of the case, giving the man's name, check number, nationality, residence, whether married or single, length of service for the company, his experience on the job where he was injured; time, location and manner, nature and extent of injury; whether or not injury had been neglected, and all pertinent facts in regard to it. In the event of serious injury the safety engineer is notified at once for the purpose of securing all evidence possible as to the causation of the accident. If it appears that it might have been induced by defects of hearing, sight, or some other mental or physical factor, steps are immediately undertaken to correct the condition. In case of physical defect, transfer is effected so that recurrence of similar accidents will not be probable.

The clinical records of the employee show whether he is a frequent sufferer from headaches, dizziness, cough, constipation or other ailment.

Not infrequently such an employee is asked to report either to the physical examination department or to the hospital for a more careful study of his case. Any necessary laboratory investigation is done free of charge to

the employee, and any treatment given that is necessary to make the man more steady or efficient on the job. The outlay involved in this program is considered a good business investment to the company. Certainly the service has uncovered many incipient cases of heart, lung, liver, stomach, kidney, and bladder troubles, when well directed advice has been of the greatest benefit to the men.

This benefit is none the less positive because it is largely confined to preventive measures. Eight years ago it was not at all uncommon to encounter four or five cases of heat cramps, cases so severe that fellow workmen as well as doctors, and nurses would be called upon to assist in massaging the cramping muscles. The medical department has been instrumental in so modifying working conditions that severe heat cramps are now practically unknown in the plant.

Safety and Sanitation

Regular inspection trips through the plant are made by the physicians who are ever on the lookout for conditions which might be injurious to the man. The industrial causes of sickness and disease are often thus removed. Better support for rational health protection is secured from the men by this personal contact, which is supplemented by systematic educational talks.

Chemical and bacteriological examination of the drinking water supply



The desire of the company to serve its employees is probably the best seen in the sympathetic care of the children. Everywhere the human element is preserved.

is supplemented by activities which touch many phases of home life. Housing service is rendered; garden plats are provided as applied for; social service and visiting nursing service are utilized; dormitory provision and dining accommodations are made for the unmarried men; and a better mutual understanding is promoted by a monthly bulletin, of from forty to sixty pages.

An educational department is well manned to give technical and general training to those who desire it.

that every man shall come up for consideration at least once a year. Everywhere the men are handled as individuals. Systems and plans are subordinated to the development of the men. Decision, action, contentment, and general efficiency, therefore, characterize the working personnel.

The work of the American Jewish Joint Distribution Committee, which has provided relief in more than forty war-stricken countries during the last eight years, will be finished Jan. 1, 1925, it was announced recently. Plans for the completion of the work were approved at a meeting of the committee held in the home of its Chairman, Felix M. Warburg. The program includes a call for the immediate raising of \$1,200,000 by American Jews for the care of war orphans in Central and Western Europe. Only \$1,513,000 of the fund already raised remains to be allocated.

More than 1,000,000 persons receive free medical treatment in New York at dispensaries, and more than 7,000,000 persons a year are so treated at dispensaries throughout the country, according to the report of development of the United Hospital Fund.



The Central Safety Committee directs the personal service work.

is regularly made and hygienic conditions are everywhere maintained.

Nor is personal service work overlooked. A department for "Mutual Interest Work" was created in 1910. Safety work which is especially effi-

Recreational features are ample and varied. An insurance system has been in effect since 1917. The system of employment is so devised that promotion is made strictly on the basis of performance, and the routine provides

The Danzig Red Cross has accepted an invitation to join the League of Red Cross Societies whose membership now numbers 43 national societies.

Computation of Partial Loss of Vision*

BY WILLIAM MEHL, M.D., BUFFALO, N. Y.

THE rating of impairments of vision has become an exceedingly popular pastime with the result that there is now a bewildering variety of reports and schemes for measuring and estimating such impairments. While six or seven years ago rating of visual losses was a fairly simple process today it has been made to appear a formidable problem complicated in the extreme.

The change seems to have begun when oculists were called upon to report and testify regarding permanent partial losses of vision. Among other questions, they were asked if the fact of a man's vision being reduced to 20/40, as the result of industrial accident, carried with it the implication that he had sustained 50 per cent loss of vision. There were those who adhered to the standard ophthalmological proposition that the fraction did represent 50 per cent loss of vision. Others took account of certain vocations wherein 20/40 did not necessarily mean 50 per cent loss of efficiency and replied in the negative.

The underlying principles involved in the rating of economic losses of vision are, when looked at as a purely common sense proposition, quite different from those applying to the rating of physical loss of vision. This fact seemed to have been overlooked.

Industrially considered, 20/40 may, in the average, mean less than 50 per cent depreciation of working vision. This, however, is of no direct concern to the oculist as such. The industrial loss implied by 20/40 (or any other formula for that matter), depends upon the point fixed by law as representing industrial blindness. We may admit even that, as a vocational asset, 20/40 does not, as a rule, mean 50 per cent depreciation of an eye. The physical loss of the first 50 per cent certainly is not as serious as reductions of vision beyond this point, considered as a wage-earning equipment.

When this view began to assert itself, then was the time for oculists, not being conversant with the peculiar demands made by various trades or industrial processes, to admit frankly that they were not qualified to pass on the question of industrial efficiency. Suggestions would have been in order

that a committee composed of employers, employees, carriers, legal advisers, and oculists would be best fitted to investigate the matter and arrive at a fair conclusion on a basis of average justice. Instead of taking this course, oculists and committees of oculists began to occupy themselves with the construction of tables which, they believed, would supply the need. The resultant confusion was aggravated when tables of this character were pushed to the fore as being authoritative, scientific and final. Indefensible as the procedure may seem, not a few oculists have persisted, contrary to the laws of the several states, in the use of arbitrary tables of their own selection when giving testimony in compensation cases.

The multiplication of free will offerings of such untenable tables was due largely to the failure to recognize or acknowledge that there can be no strictly ophthalmic formula for the rating of losses of vision, resulting from industrial accidents when economic considerations are injected. It further revealed a seeming disregard of the fact that physical and industrial losses are not always identical. Account should have been taken also of the experience that such a matter can only be settled finally by legislative enactment or equivalent authoritative rulings.

Chicago Report First Step

The report of the Chicago Ophthalmological Society in December, 1916 probably represents the first noteworthy effort to work out an acceptable basis for computing visual losses to be applied to compensation cases. In this report 20/40ths is accepted as 50 per cent of the vision of an eye. This conclusion is modified and minimized, however, by the introduction of four factors to be considered in connection with it: namely, (1) vision of injured eye, (2) vision of uninjured eye, (3) stereoscopic vision, (4) cosmetic result.

The next important contribution was the Milwaukee report. Then followed the report of the Medical Society of the state of New York, along with an explanatory appendix. Next appeared the report of the A. M. A. which was advocated as a national standard of rating, and yet only one year later we find this national standard is questioned by a minority of the same A. M. A. committee, and the ma-

jority itself finds it necessary to modify its own propositions regarding two or more essential points.

The regrettable lack of harmony on the part of ophthalmologists, as to what should be considered the standard for fixing the percentage of loss of vision sustained by a visual organ, as result of accidental injury, is traceable directly to the use of the various conflicting tables proposed for the rating of compensation cases. Oculists throughout the United States are inclined to subscribe to reports and tables advanced by their professional representatives in council assembled, although these propositions not infrequently run counter to the law in several states. For example, in the state of New York, loss of single binocular vision is legally equivalent to 100 per cent loss of one eye, while the tables most generally used assign to this function a varying value ranging from not more than 20 to 25 per cent. Moreover, officers having to do with the making of awards, have been advised that the proposed tables must be accepted as authoritative and that any contrary views must be dismissed as unscientific. Yet ordinary reasoning would suggest that the use of such tables is clearly contrary to law and therefore unjustifiable.

The State Industrial Commission of New York, recognizing the growing confusion, called a conference of eye specialists, at Albany, in October, 1920, to consider the question "What constitutes a fair estimate of loss of use of eye in workmen's compensation cases?" It was my privilege, at that time, to participate in the discussion, and believing that there was need of counteracting an evident tendency to minimize reductions of working vision, I centered my criticisms on this point. I attacked in particular those schemes which divided vision into assumed component parts, assigning to each of these parts a more or less arbitrary value. The suggestion had been given currency that central visual acuity represented not more than 40 per cent of vision, peripheral vision being allowed an equal rating, while only 20 per cent was accorded to loss of binocular vision. My discussion was chiefly an insistence that the central, peripheral, and binocular factors of vision, in their normal state, should not be used to minimize losses sustained by any one of the three factors. I argued

*Read before joint meeting of Industrial Hygiene Section of American Public Health Association and the Ohio Association of Industrial Physicians, Cleveland, Ohio, October 17, 1922.

that all factors, including color perception, were undoubtedly essential for perfect vision, but that they were not distinct and separable elements whose relative value could be determined ophthalmologically at the ratio of forty, forty and twenty, or whatever other ratio happened to be favored.

My contention is that vision should be interpreted as working vision, which is visual acuity, estimated after correction by lenses. Visual acuity undoubtedly is relatively the most important factor as regards industrial efficiency. Furthermore, it is the vision most frequently destroyed or reduced by accident. Accordingly, it would seem right that the highest degree of visual acuity obtained, after correction by lenses which the eye will tolerate as expressed in the Snellen figures, should determine the percentage of vision remaining.

If there should happen to be an extremely rare definite case of impaired peripheral vision, then would be the time to give special consideration to it.

Personally I should favor accepting the greater impairment of either visual acuity or peripheral vision as representing the total loss. For example, if the field of vision in one eye has been reduced 50 per cent and visual acuity in the same eye 20 per cent, I should be inclined to rate the loss for the eye at 50 per cent.

The theoretic suggestion that there is an unimpaired field of vision should not be advanced as an excuse for minimizing central visual acuity.

As a matter of fact traumatic impairments of peripheral vision by itself are so rare that it would be unjust to reduce the allowance for the ordinary eye injuries by suggesting that peripheral or binocular vision were not disturbed.

Visual acuity, or working vision, is determined universally by Snellen tests. Twenty to forty accordingly would represent 50 per cent loss of vision, fixing merely the degree of the purely physical loss sustained. When considered from the standpoint of industrial efficiency, there would be of course a different valuation placed on the fraction.

There are at least three principles by which permanent partial physical impairments may be rated: (1) The purely physical principle by which the medical examiner determines the degree of damage done, regardless of general or specific economic depreciations. (2) The specifically economic principle by which an injury is estimated according to reduction of earning ability which the individual has

suffered in consequence thereof in the pursuit of his chosen vocation. (3) The intermediary general industrial principle which fixes the monetary value of normally functioning members and organs of the body as a general industrial asset and rates the sustained physical impairment according to established schedules.

As we are dealing more particularly with the rating of permanent reductions of eyesight, and as the law of most states take no account of the actual economic losses the injured individual must face in consequence of the physical damage, we are concerned here only with the first and third principles. In other words, we have to do here, on the one hand, with the determination of the actual physical impairment, which must be established by the medical examiner, and, on the other hand, with the legal rating of such physical impairment, which is primarily the responsibility of the compensation referees. Unless we keep in mind these few simple practical facts, when we discuss particular phases of the law and their proper interpretation, we are sure to become entangled in irritating, wasteful, and fruitless controversies.

Ophthalmological Rating

No one can reasonably expect medical men to be conversant with the compensation law, the various changes it has undergone, the court decisions regarding it, nor even the principles upon which it is established. Our particular care is to examine and diagnose accidental injuries and whatever consequences may have resulted from these and then report our findings and opinions to the officers charged by the state with the making of awards under the compensation law.

If we could be permitted to adhere strictly to these lines—taking no account of the legal aspects of the determination of compensation cases—we should be able to confine ourselves to giving straightforward statements of purely scientific findings and then leave the legal interpretation of these findings to the officer or officers whose business is to know and administer the law.

The question of what percentage of sight an eye has lost as a result, direct or indirect, of an accidental injury is a case in point. All that the oculist, as such, ought to be expected to do, is to determine technically the degree of purely physical impairment sustained, using the peculiar means at his command, and then report.

Interpretation of the physical find-

ings of oculists is a problem apart. As regards degrees of impaired industrial vision, the rating must depend largely upon the point fixed by law as representing industrial blindness.

The question as to what shall constitute industrial blindness is one which cannot be determined by oculists, alone. Ophthalmology has no final word to offer on this subject. Industrial blindness, itself, is a rather vague term. If all vocational occupations could be considered separately, we might, in the course of time, be able to fix a point of blindness for each. Even this procedure would not result in supplying standards of unquestionable justice. Workers with us are not willing to be held to any particular occupation. They claim the right of freemen to turn to whatever work may appeal to them or in which their opportunities for advancement, economically or socially, are greatest.

There is then only one way for meeting the situation, and that is to make as careful as possible a survey of the various industries and other activities carried on in each state and on this basis to estimate the wage-earning opportunities of the workers employed and the visual efficiency required in the average.

Meanwhile common sense has acquiesced in the proposition that the legislature should fix the point of industrial blindness and to let experience dictate such legal modifications, or amendments of the law, as may be found to represent a closer approach to what is known as average justice. In the state of New York 80 per cent loss of vision is now the legal point of blindness. This is an achievement of considerable importance.

Following standard ophthalmological authorities, 80 per cent loss of vision is represented by the Snellen formula 20/100. I have not been able to find a single text book which does not adhere to this proposition. Such acknowledged authorities as Landolt, Noyes, William Campbell Posey, Juler, St. John Roosa, L. Webster Fox, and Hofrat Ernst Fuchs are all agreed on this point.

The question, accordingly, resolves itself to this: Does 20/100 meet the demand of average economic justice as representing industrial blindness? I am inclined to believe that it does, considering that the law covers trades requiring the highest degree of visual efficiency as well as unskilled occupations for which a minimum of vision suffices.

An open-minded, fair analysis of the proposition letting 20/100ths

stand as the point of industrial blindness is well worth while. To begin with, it means 20/100ths after correction with the strongest lenses the eye will tolerate, the courts have decided. Furthermore, we must bear in mind that a workman, afflicted with a loss reducing his vision to 20/100, is under the necessity and the attendant expense of periodical examination of his injured eye and the replacement of lenses, besides being under the disadvantage which a man wearing glasses is bound to experience in the labor market. The latter point is a rather serious one. Employers, other things being equal, prefer a man who has seemingly normal eyes to one whose defect in this respect is made prominent by the wearing of glasses.

Lenses Often a Barrier

Moreover, lenses are a positive barrier to admission in several trades. Many engineers and machinists find that oil and steam render their glasses opaque and disqualify them for the pursuit of their particular occupations. In addition to all other obvious depreciation of the visual efficiency and consequent wage-earning capacity, there remains the not at all unimportant fact that no allowance is made in any case of eye injury for any vision originally possessed by the injured worker in excess of 20/20ths. All things considered, therefore, the fixing of 20/100 as the point of industrial blindness may well be accepted as representing a fair approach to average justice.

The point of industrial blindness being fixed by legislative act, the remaining problem would be how to rate partial losses between this fixed point and normal vision.

Here again we are confronted by a confusion of estimates created by reports of committees of ophthalmological organizations. The objectionable feature of most of these reports is that standard ophthalmological principles are abandoned, in that an arbitrary rating is assigned to each ten foot loss of ability to see whether occurring between 20/20 and 20/30 or between 20/200 and 20/210. In other words, the proposition is advanced that the same amount of compensation be paid for the 10 foot loss between 20/20 and 20/30 as for the 10 foot loss occurring between 20/200 and 20/210. And yet we all know that the ten feet between 20/20 and 20/30 are of at least ten times greater value than the ten feet between 20/200 and 20/210. Applying geometric progression, the difference in values is at once apparent. For example, accepting the

point of blindness to have been fixed at 20/320, the fifty feet between 20/200 and 20/250 represent a loss of only 8 per cent, a loss equal in value to five feet between 20/20 and 20/25.

Moreover, it is easy to tell quite readily the difference between 20/20 and 20/30, as this represents a decided value. How can the difference be ascertained when vision is comparatively low, as between 20/100 and 20/110? Does it not seem unreasonable to assign to the undeterminable 10 feet between 20/100 and 20/110 the same value as to the clear distinction between 20/20 and 20/30? Here we are not on debatable ground but are confronted by an absolute scientific fact.

In Snellen tests we are dealing with visual angles and not with a straight line which may be divided into equal parts of ten foot each. Footage is not based on visual angles and will never fit in with them. Hence it is unwarrantable, from a scientific standpoint, to treat the difference between 20/20 and 20/30 as equal to the difference between 20/100 and 20/110, between 20/140 and 20/150, or 20/190 and 20/200, or any other ten feet distance. It is as absurd as if we should treat the circumferences of all concentric circles as of equal length, when they are equi-distant one from the other. The reason for the abandonment of ophthalmological rating in favor of footage progression was no doubt a subconscious prompting that ophthalmological impairment and economic depreciation of an eye do not always agree.

There is yet another objection to the tables presented as authoritative standards, and that is that each assumes a different arbitrary point of blindness. The question is essentially an industrial one, so far as workmen's compensation laws are concerned. Hence the fixing of the point of blindness for this particular department cannot be done by ophthalmologists alone. These could undoubtedly supply valuable suggestions, but the final fixation must be accomplished by legislative enactment which will have to prove acceptable to employers, employees, insurance carriers, and the general public as well.

It must be apparent to everyone that the point finally established as representing industrial blindness is an important consideration in the construction of any rating table. Such a table would represent chiefly a constructive effort to assign to each degree of impairment between normal vision and the fixed point of industrial blindness a definite valuation which

might then be given legal force by proper legislative enactment. In other words, the legislature would have to fix for every fraction of vision, as established by the Snellen test, a percentage of loss assumed to represent the impairment of the general economic usefulness of an eye. This percentage would then apply to all cases, regardless of the particular occupation of the injured individual, as is now being done in cases of amputation or ankylosis, of fingers, arms, legs, etc. In such a table account could be taken of the fact that the first one-half loss of physical vision is not as serious as the second half, economically speaking, and accordingly greater proportionate compensation be allowed for losses above 50 per cent than for those below 50 per cent.

With a view toward helping solve the problem, as it presents itself under the New York law, in a manner to preserve the principles of average justice from the standpoint of industrial efficiency, and allowing more for the second half of vision than for the first on economic grounds I suggested some time ago a rating table which would seem to meet the reasonable requirements of justice, common sense, and simplicity.

Rating Suggested

You will no doubt observe, when I present the suggested table, that it is based on "the footage fallacy." The excuse for it is that it does, in the particular case of New York, meet the industrial considerations quite satisfactorily. In the physical ratings from 20/20 to 20/100, footage and geometric progression are more or less far apart, but not anything like the divergence which would occur when the progression is carried up to 20/200 or to a still more remote point assumed to stand for industrial blindness. Besides, as a practical proposition, the industrially greater value of the second half of physical vision as compared with the first half is given due weight, and the footage scheme here seems to answer the purpose admirably, since it assigns a lesser value to the first part of vision. That is why I did not hesitate to adopt footage here.

The suggested table is, of course, constructed mechanically, with reference to the legal point of industrial blindness. The point of blindness having been fixed arbitrarily by legislative act, the table governed by it must necessarily partake of the character of arbitrariness. The fact that the table has found favor with fair-minded students of the problem would

seem to indicate that it meets the existing situation, and its legal adoption would end the prevailing unfortunate confusion. It is as follows:

	Loss	
20/25ths.....	61½	per cent
20/30ths.....	12½	per cent
20/35ths.....	18½	per cent
20/40ths.....	25	per cent
20/45ths.....	31½	per cent
20/50ths.....	37½	per cent
20/55ths.....	43½	per cent
20/60ths.....	50	per cent
20/65ths.....	56½	per cent
20/70ths.....	62½	per cent
20/75ths.....	68½	per cent
20/80ths.....	75	per cent
20/85th.....	81½	per cent
20/90ths.....	87½	per cent
20/95ths.....	93½	per cent
20/100ths.....	100	per cent

One more suggestion before I close. The former bewildering confusion created by various committees of oculists has of late become something like an approach to consensus of opinion on a few important matters. To begin with, there is no longer a putting off of the point of industrial blindness to an excessively intolerable distance. The tables based on assumptions which later study has proved unjustifiable have fallen with the change which has taken place. But what about the workers whose injuries

were rated by such tables? Would not the right thing be to urge the re-opening of cases which were compensated inadequately and give the injured workers their just due?

Awards under the compensation law must be based on findings of facts. These facts are modified, in certain instances, by arbitrary schedules governing the rating of permanent physical impairments. Legal enactment supersedes scientific opinion, whatever the latter may be, as regards loss of vision in an eye. A clear line of distinction must be observed between ratings which are to guide the administrators of the compensation law and ratings based on speculative assumptions.

Conclusions intended for the guidance of the legislature must not intrude as conclusions for the guidance of the state officers charged with the duty of making awards under the existing law.

By observing these practical limitations we shall soon overcome the prevailing confusion in rating permanent losses of vision.

Recent Compensation Decisions

BY DOROTHY KETCHAM, DIRECTOR, SOCIAL SERVICE DEPARTMENT, UNIVERSITY HOSPITAL, ANN ARBOR, MICH.

THE Supreme Court of Illinois, December 19, 1922, awarded compensation for death following empyema and pneumonia. A foreigner was working as a molder. He turned around to get a flask when some boards piled near on some sand, tipped and fell, striking him on the side. He was frightened and weakened, tried to get assistance in completing his molds, but being unable to do so, continued to work. The company claimed no notice was given and there was confusion about the nature and extent of injuries. The man's wife later went to the plant, told of the illness and how he was hurt. She was forced to talk through an interpreter since she could neither talk nor understand English. A midwife, at the request of the wife, attended the man, applying cold compresses and bandages as a neighborly act. Eventually the man became very much worse and, when a physician was called, a diagnosis of pneumonia and empyema was made. The man was taken to the hospital and operated. The physician testified that "there is a condition known as traumatic pleural pneumonia, that empyema is not necessarily the result of a blow; the

doctor could not tell what caused the condition in this case, and got no history of an accident in connection with the case. He had no interpreter and it was very hard to get anything out of Palocz and his wife." The cause of the empyema can only be determined from the history of the case. In this case, from the history, it is a reasonable inference that empyema resulted from the injury according to the Court and the award of the Commission was upheld.—*National Malleable Castings Co. v. Industrial Commission* 137 N. E., 520.

AN EMPLOYEE was crushed between a car and a prop in a coal mine and suffered several fractures and bruises to his back, ribs, and chest. He was taken to a hospital and later removed to his home. Pneumonia developed and, later, he died. The attending physicians testified that the injuries received were not serious and would not in themselves have produced death. The injuries, in their opinion, however, weakened his disease-resisting powers and in that respect contributed to his death. The Supreme Court of Illinois upheld the Commission, December 19, 1922. "It

is not uncommon for pneumonia to develop in a person who has suffered a serious injury to the thorax, and when a healthy man, crushed as Buckner was crushed, develops pneumonia while confined to his bed by reason of his injuries, and dies before his injuries heal, it is natural and reasonable to conclude that his death is the result of such injuries."—*Lumaghi Coal Company v. Industrial Commission*, 137 N. E. 439.

PNEUMONIA immediately followed the injury of a miner in the following case before the Supreme Court of Utah, November 24, 1922. The employee, while lowering a stopping machine weighing about sixty-five pounds, became entangled in the rope and was jerked a distance of six or eight feet and injured. Immediately he became ill, was taken to the surface of the mine, was for an hour or two in the engine room, and then taken home, when a physician was summoned who made the diagnosis of "the beginning of pneumonia." The condition became progressively worse despite the care he received and he died a few days later of "lobar pneumonia."

The evidence showed that prior to the accident the man was healthy, thereafter he became sick and died "without anything more or unusual happening to induce or cause him to have pneumonia." The Court states, "It is our opinion that it was not necessary for the Commission to find from the evidence that an injury resulting from accident was the sole cause of death. If the injury received in the accident materially contributed to the virulence of a disease he already had, and from which he died, that in our judgment, justified the award. From the evidence disclosed by the record here no just inference can be drawn but that an injury from accident either was the sole cause of lobar pneumonia or that it so accelerated that disease that ultimately death ensued. Upon either theory claimants were legally entitled to an award."—*Milford Copper Company v. Industrial Commission*, 210 Pac. 993.

The National Physical Directors Society announces that a general commission to study association physical work is in process of creation. A full-day session of the next Employed Officer's Conference, to be held at Blue Ridge, N. C., on May 27-30, 1923, will be given over to the commission for its report.

A Psychrometric Chamber and Its Uses*

BY R. R. SAYERS, CHIEF SURGEON, U. S. BUREAU OF MINES; SURGEON, U. S. PUBLIC HEALTH SERVICE, AND W. J. MCCONNELL, P. A., SURGEON (R.) U. S. PUBLIC HEALTH SERVICE, PITTSBURGH, PA.

THE invention of an instrument of precision for determining relative comfort in varying atmospheric conditions has been the aim of many investigators. Their endeavors have in part developed the different types of thermometers.

The so-called wet bulb thermometer has been perhaps the instrument of choice, but the Kata-thermometer is now being widely used. The Kata-thermometer measures its own rate of cooling, and its readings depend upon the changes in temperature, humidity, and air velocity, factors that likewise affect the heat loss from the human body.

That this instrument serves as an index of bodily comfort is generally accepted. It is very questionable, however, whether any single instrument can be designed that will answer this purpose.

The factors which influence heat production and heat loss are many and varied. We know in general, for example, that the heat regulation mechanism in man must, in order to maintain constant his internal temperature, produce a total quantity of heat above that amount required to carry on the indispensable physiological functions of the body, for the purpose of performing muscular work. Atmospheric conditions may alter the amount. If the atmospheric temperature is maintained at the body temperature, man's thermogenesis then diminishes. The factor of coordination of the nervous mechanism over the muscles of the body in response to sensations of heat and cold is difficult to evaluate, but is a very important one. Many other factors influence heat production and heat loss in man, and it is only by a study of the relative importance and correct correlation of these factors that we can hope to mitigate the abnormal physiological effects.

The advisability of making observations upon men subjected to accurately controlled air conditions is evident. The U. S. Public Health Service and the U. S. Bureau of Mines cooperating with the American Society of Heating and Ventilating Engineers have undertaken to do this, and a psychrometric chamber has been constructed at the Pittsburgh Experi-

mental Station of the Bureau of Mines.

This chamber consists of two adjoining rooms each $17\frac{1}{2} \times 8\frac{1}{2} \times 10'$, completely insulated from each other and the outside by walls composed of four inches of cork covered on both sides with cement. The ceiling and floor are also built of the same material.

Entrance is made from a small anteroom into the outer room through a refrigerator door also insulated with four inches of cork, and into the inner room through another refrigerator door of the same type. Figure No. 1 illustrates the plan of the chamber and accessory rooms.

The air conditioning apparatus, located in a space just outside of the chamber, consists of an automatically controlled distributing system, refrigeration equipment, humidifiers, heaters and fans. With this equipment it is possible to maintain any dry bulb temperature ranging from 20 degrees to 120 degrees F., and any relative humidity from 10 per cent to 100 per cent. Experiments can be carried on in either still air or in air with any desired velocity up to 1,000 feet per minute. Figure No. 2 shows the apparatus which maintains the atmospheric conditions.

When it is desired to procure a given dry bulb temperature and humidity, the corresponding dew-point temperature (the dew-point is the temperature at which moisture begins to be condensed from the air) is determined from the psychrometric chart, and the outside air is saturated

at this dew-point temperature by being drawn through the humidifier. The air entering the humidifier comes in contact with two banks of spray nozzles.

If the air to be conditioned has a dew-point temperature lower than required for a desired experiment, the water in the spray nozzles of the humidifier must be heated. This is accomplished by a thermostat in the dew-point chamber which, when set for the dew-point desired, operates by compressed air a diaphragm valve, thereby admitting steam to an ejector water heater at the inlet side of the water circulating pump. The thermostat opens and closes the steam valve, thus controlling the temperature within one degree.

If the air to be conditioned has a dew-point higher than required for the experiment, the water in the spray nozzles must be cooled. The water is circulated and cooled in a tank in which a direct expansion ammonia coil is placed. The dew-point thermostat controls a three-way valve taking cold water from the cooling tank and warm water from the humidifier, thus giving a mixture of the correct temperature for the desired dew-point.

The saturated air leaving the humidifier is drawn through a conoidal fan and blown over *vento* steam heaters. A diaphragm valve on the heaters is controlled by a thermostat and makes an automatic control of the dry bulb temperature. The conditioned air is blown into each room through a plenum chamber with a large number

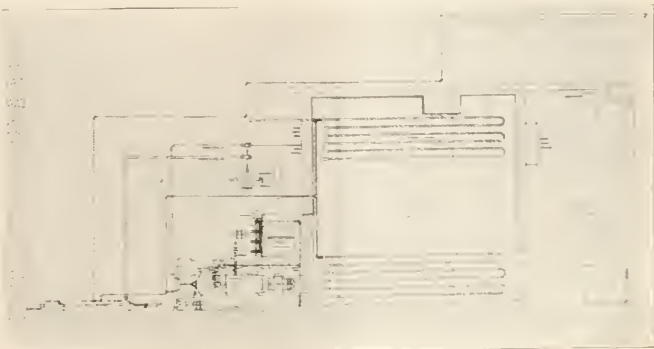


Fig. 1.—Layout of psychrometric chamber constructed at Pittsburgh Experimental Station of the Bureau of Mines.

*Published by permission of Director of U. S. Bureau of Mines, Department of the Interior.

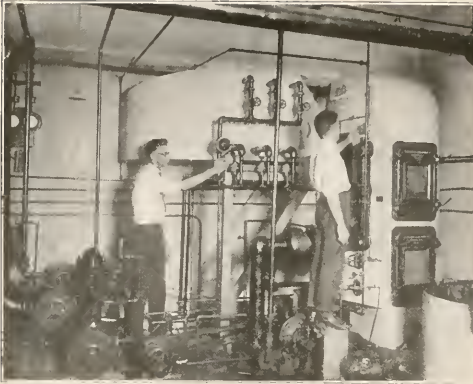


Fig. 2.—The apparatus for the control of temperature makes it possible to maintain any dry bulb temperature ranging from 20° to 120° F. The air observed may be still or moving with any desired velocity up to one thousand feet per minute.

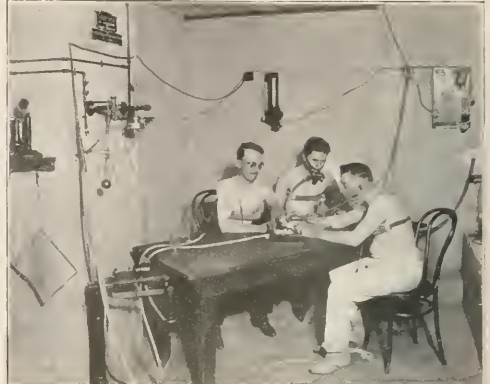


Fig. 3. Figures in the test chamber. When it is desired to procure a given dry bulb temperature and humidity, the corresponding dew-point temperature is determined from the psychrometric chart. Separate controlling systems are provided in the two chambers.

of outlets in the side for even distribution. A hand-controlled direct expansion ammonia coil is installed in each room so that the dry bulb temperature may be made lower when desired. A return system connects each room with the intake of the humidifier so that the air may be recirculated if desired.

In order that different conditions may be maintained in each of the two rooms, as is frequently desired, each room is equipped with special apparatus.

A direct heating system has been installed in the inner room. After the conditioned air enters this room, its dry bulb temperature may be lowered by the ammonia coils, or raised by the heaters. The dew-point, however, will remain unchanged as long

as the dry bulb temperature is not lowered below the dew-point temperature and cause condensation. In the outer room a bank of spray nozzles are placed in the plenum chamber and operated by compressed air. In this room the entering conditioned air may have its dry bulb temperature lowered by the direct expansion ammonia coil or it may have its dew-point raised by liberating water into the room through the spray nozzles in the plenum chamber. A gyrostat operates the additional spray nozzles automatically. The ammonia coils are part of the refrigeration equipment which consists of an ammonia compressor, condensers, accumulator, separator, motor and expansion coils. An air compressor with storage tank supplies air for the automatic control.

From this description it is apparent that any desired atmospheric condition may be obtained. The individual rooms are adequate in dimensions to accommodate a sufficient number of subjects for observation. Wherever possible the instruments for measuring physiological reactions are located in a room adjoining the test chamber.

Experiments with the Kata-thermometer have established definite laws of losing heat from a dry and wet surface. With the elaborate equipment of the chamber human subjects can be used instead of the Kata.

The sensitiveness of the body to changes of temperature and humidity is ascertained by having subjects pass from one room of a given temperature and humidity to the other maintained at a slightly different condition.

The physiological effects produced by different atmospheric conditions

are observed on human subjects during their stay in the chamber. This work may well be divided into four phases as follows:

- (1) Observations on subjects at rest and in still air.
- (2) Observations on subjects at rest and in air of different velocities.
- (3) Observations on subjects at work (either physical or mental) and in still air.
- (4) Observations on subjects at work and in air of different velocities.

The subjects who are subjected to the tests first rest for two hours in a room where the atmospheric conditions maintained are similar to those of any well-ventilated rest room. During this period the pulse and respira-



Fig. 4.—Body temperature is taken by means of electro-thermocouples and potentiometer. This picture shows the reading of the potentiometer.



Fig. 5.—Pulse Tracing.



Fig. 6.—Respiratory tracing by means of Kymographion.

tory rate, body and surface temperatures, and blood pressure are recorded. At the end of the two hour period the subjects are weighed. On entering the test chamber they insert the rectal "thermocouples" and strap the tubing, for recording respirations, around the chest. Figure 3 shows the subjects in a corner of the chamber in a test. During the high temperature work the subjects strip to the waist, thus approximating the conditions of men working in high temperatures in the industries.

In these experiments the blood pressure is measured by means of a mercury sphygmomanometer, the auscultatory method with the subject in a sitting position being used. The oral temperature of each subject is taken by the "one-minute" clinical thermom-

eter. These thermometers are kept in ice water during the high temperature experiments. The rectal and surface temperatures are recorded by means of thermocouples, which are connected to a potentiometer in an adjacent chamber, as shown by Figure No. 4.

A permanent record is made of the pulse on smoked paper whenever desired, as illustrated in Figure No. 5.

Respirations are recorded at intervals unknown to the subjects by means of the kymographion (Figure No. 6). An inflated tube is strapped around the chest, and connected by means of long rubber tubing to the kymographion.

Many difficulties are encountered in determining the basal metabolic rate, as it involves transporting the expired breath of the subject undergoing the test to the apparatus in an adjacent room. The subject breathes through the mouthpiece of a Gibbs oxygen breathing apparatus, which is connected to a graduated gasometer (Figure No. 7). The mouthpiece referred to consists of two butterfly valves, one of which opens when the subject inhales and closes when he exhales, while the other closes when the subject inhales and opens when he exhales, thus conveying the exhaled air to the gasometer. A small nose clip prevents nasal breathing during the collection of the sample. Three samples of thirty liters each are collected from each subject at one-hour intervals during the test. From each of these an average is analyzed for CO₂ and O₂ on a Haldane apparatus. Analyses of the blood for haemoglobin and sugar, of the sweat for acidity and

chloride concentration, and of the urine for albumen and sugar, have been made at intervals.

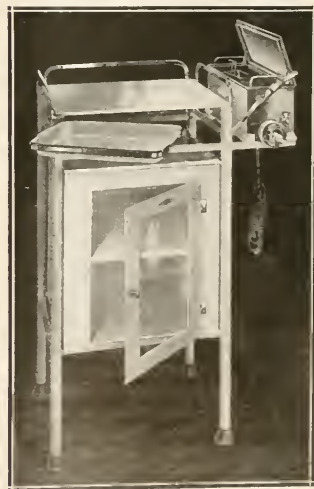
The temperature and humidity of the air in the test chamber are determined by means of an automatic indicating psychrometer. Analysis of the air in the chamber also is made at intervals during the tests.

After leaving the chamber the subjects are again weighed and a record is kept of the afterfall in temperature and pulse, and notation is made of any unusual symptoms following the exposure.

New Utility Stand and Sterilizer

Hospital executives are realizing more and more the economy of having electric sterilizers in clinics, dressing rooms, and wards. They take the place of the old gas plate, and because of their automatic cut-offs soon pay for themselves in the goods and instruments which are saved from being burned up. The new cut-offs are really dependable now.

An electric sterilizer of course has to be put on some sort of table. One



manufacturer, realizing the difficulties of the situation, has just put out a convenient stand which holds either a 13 inch or 16 inch sterilizer at one side.

The table top is vitrolite, guarded by nickel rails. A removable tray for instruments swings from a bracket underneath and a good sized cabinet provides for the storage of linen or other supplies. The table is as complete as can be desired.



Fig. 7.—Instrument for sampling and analyzing the breath.

Inspection Standards Vary

STANDARDS of factory hygiene vary, but not more than do the qualifications of factory inspectors. In connection with studies of problems connected with workmen's compensation, the National Industrial Conference Board has made a recent inquiry which brings out the remarkably wide variation that exists in the practices and regulations of the several states in the selection of these officials.

In nine of the states—California, Illinois, Maryland, Massachusetts, Minnesota, New Jersey, New York, Ohio, and Wisconsin—candidates for appointment as factory inspectors must pass civil service examinations. In California the safety engineers and inspectors on the staff of the Industrial Accident Commission must be specially qualified either through technical training or practical experience for their particular branch, the work being divided under a superintendent of safety, into mining boiler, mechanical, electrical, construction, shipbuilding and elevator divisions.

References are also required, and every man's history is carefully checked, while the written examination is supplemented by an oral one in which experts in each specialty assist the examining board. In Illinois the examination is chiefly concerned with the applicant's knowledge of the laws to be enforced by the division of factory inspection. Besides the inspectors, two part-time physicians and some other technical men are also attached to the division's staff.

In Maryland, where the initial salary is from \$1,200 to \$1,500, the applicant for appointment as industrial inspector must be at least eighteen years of age and have a high school education or its equivalent, "preferably with additional sociological training, successful inspecting or investigating experience, familiarity with child and female labor regulation, ability to prepare concise reports, knowledge of the industrial safety and sanitation, ability to judge situations and persons accurately and quickly, keenness of perception, integrity, resourcefulness, perseverance, good address and tact." Special credit rating, equivalent to not less than 20 points on a basis of 100, is given to men or women, honorably discharged, who are veterans of the World War.

The examination in Massachusetts is very thorough, dealing almost wholly with problems of sanitation,

ventilation, experience in safeguarding machinery, accident prevention work, occupational diseases and similar industrial matters. Of the thirty-six inspectors in the State, six are women. Many are college graduates and all have had training in some industry.

Practical experience, coupled with ability to pass a competitive Civil Service examination, both written and oral, is required of all candidates for appointment as chief factory inspector, elevator inspector, railroad inspector, factory inspector in Minnesota.

Factory inspectors in New Jersey "are examined in elementary subjects such as arithmetic and also in their knowledge of methods of dust removal sanitation, machine guarding practices, building construction and fire prevention." They must also be familiar with the various laws enforced by the state department of labor. Compensation varies from \$1,440 to \$2,360 a year, and can be increased at any time in the direction of the Civil Service Commission. Practical mechanical experience and a thorough knowledge of conditions existing in industrial plants are required to pass the civil service examination in New York State, and many of the inspectors have special technical qualifications also.

Factory inspectors in Ohio are examined for a knowledge of general safety practices for workshop and factories, but "the men usually appointed are not specially qualified nor are they technical men." In Wisconsin, the written examination is followed by an oral interview before examiners of the Civil Service Commission and representatives of the State Industrial Commission to determine their personal qualifications.

"Most of our factory inspectors," says the New York Member of the Conference Board, "are practical shop men who are experts along some one particular branch of industry, but where problems come up that they cannot handle the matter is referred to one of our engineers." "We have conferences of all our field men once in two months, in which we spend a day or two in discussing all problems. The various field men bring up questions that have originated in their districts and these are discussed. Another object of these conferences is so that we may have uniform enforcement of the commission's requirements."

In other states to which letters were addressed, no written examinations are required. Connecticut inspectors are appointed by the Commissioner, and are selected according to his estimate of their fitness for the work required. Of the nine deputies in this State, the law requires that two shall be women. The Michigan law makes no specification of qualifications required, although it is the policy of the department to get the best men possible for the work.

In the Pennsylvania Bureau of Inspection, which is under the supervision of the Commissioner of Labor and Industry, provision is made for fifty-eight inspectors, divided into four grades. The four members of the fourth and highest grade are a licensed physician, who is chief medical inspector; a mechanical engineer, expert in ventilation and accident prevention; a chemical engineer, and a civil engineer; and an expert in fire prevention and building construction. The two medical inspectors of the third grade, one of whom shall always be a woman, are both licensed physicians. The two inspectors of the second grade act as supervisors, with offices at Pittsburgh and Philadelphia, and direct the work of the fifty inspectors of the first grade, of whom at least five are always women.

Practical experience for at least ten years is required of every appointee as deputy or assistant deputy inspector in Indiana. The deputies, of whom there are three, hold office for four years, with an annual salary of \$2,000. They divide the field, one being inspector of buildings, factories and workshops, one of boilers, and one of mines and mining. Each deputy may appoint five assistant inspectors at a salary of one thousand dollars a year.

The two inspectors in New Hampshire are appointed by the State Labor Commissioner. The present incumbents, says the Commissioner, are "good practical men," with wide general knowledge of the kinds of machinery used in the State, and with "ability to meet other people's point of view on subjects of safeguarding machinery and also sanitary and hygienic conditions of workshops and plants they visit."

In Rhode Island, where the chief inspector is assisted by a deputy chief and three assistant inspectors (one of whom is a woman), the board's inquiry was answered by a single brief sentence: "We would say that the only qualification required is common sense."

INSTITUTIONAL HEALTH

The Health Problems of Schools and Colleges, Hotels, Summer Camps, Children's Homes and Homes for Dependents

Convalescent Care in Suburban Communities*

By FREDERIC BRUSH, M.D., MEDICAL DIRECTOR, THE BURKE FOUNDATION, WHITE PLAINS, N. Y.

THE reproach of medical and public health practice today is in the neglect and faulty care of convalescents, chronics, the handicapped, and the various borderline nervous and mental ailments. This zone of ill health is unpopular with the physician and poor instruction on this subject is given in the medical schools. Social service, reconstruction, and vocational and employment agencies for the handicapped indicate increasing auxiliary efforts. But private and public health physicians generally will take right interest only when they are brought to realize that quacks and cults thrive mainly in this very field, which the former have for years partly surrendered, through indifference and inefficiency in follow-through treatment.

Convalescent care in practice covers in some degree this entire health zone. Now there is fortunately a revival in this branch, after more than a half century of lethargy. Its history, advancements, new standards, and literature may not here be reviewed. Those interested are referred to an authoritative series of articles by Dr. John Bryant, of Boston, now being published in the *Boston Medical and Surgical Journal*. The conclusion is that the convalescent home in the country is the best proved instrument for the restoration of these border-zone persons, who make up a surprisingly large percentage of populations everywhere.

A study of the present convalescent provision and needs of Westchester County, N. Y., will apply broadly to many other small city and suburban communities. This county, holding nearly four hundred thousand people, in part functions integrally with the

great metropolis, but grades through its small cities and towns into fairly rural conditions in the outlying sections. According to certain standards and ratios now becoming well accepted there should be for the county two hundred to three hundred convalescent beds available the year round. Instead there are practically no convalescent places definitely for county patients, and only a modest fractional provision is obtained through the courtesy-use of New York City homes located herein. The above apportionment of two hundred beds minimum takes fair account of the comparatively open-space and favorable living and recuperation conditions prevailing. Without detailing the studies and reasons, it may be conclusively stated that suburban and rural communities need less population-proportion of convalescent bed facilities than large cities, but that

this lower ratio need is at least equally valid and pressing.

Who in such communities want these convalescent beds?—Factory and all other classes of wage-workers whose homes are unsuitable for good recovery after illness or operation (the houses or the people in them may be the obstacle); many servants, even in large establishments; farm and grounds employees especially; people of usual ample means who have exhausted their resources in the struggle for health; those showing marked and progressive fatigue at the daily task, be it housekeeping, railroading, book-keeping, child-rearing, or other; the ageing and the handicapped, the discouraged and the constitutionally inferior, requiring bracing up before readjustment to more suitable occupations and modes of life; large numbers of nerve-worn and half-ill persons who are often surest of restora-

SUMMARY OF NATIONAL DIRECTORY OF CONVALESCENT HOMES.

State	Number of Homes	Beds Year-round	Beds Summer only	Total
Alabama	2	20	12	32
California	11	290	340	630
Connecticut	6	90	140	230
Washington, D. C.	2	10	40	50
Georgia	1	..	50	50
Illinois	8	242	414	656
Kentucky	2	..	80	80
Louisiana	2	..	50	50
Maryland	3	10	48	58
Massachusetts	19	359	228	587
Minnesota	2	130	..	130
Mississippi	1	..	50	50
Missouri	3	50	..	50
New Jersey	17	474	508	982
*New York	52	2,013	2,222	4,235
Ohio	5	185	123	308
Pennsylvania	17	375	..	395
Rhode Island	2	45	170	215
South Carolina	1	..	..	..
Tennessee	1	50	..	50
Texas	1	32	50	62
Virginia	1	..	..	..
Wisconsin	1	20	..	20
23 states	162	4,155	4,525	8,680
East of Ohio (14 states)	129	3,641	3,629	7,270
West (9 states)	33	814	896	1,710

*New York City has about one-half of all convalescent beds in the United States, some of the Homes being in New Jersey, Connecticut and Massachusetts.

*Read before the New Rochelle Medical Society, New Rochelle, N. Y., January 8, 1923.



Dancing, indoors and out, proves highly restorative, especially as mental therapy.

tion by a decided change, and a temporary separation from their own people.

How does the modern convalescent institution function in bridging this recognized public-health dead-space? By giving time, peace and rest, and a new advanced reconstructive training and viewpoint, to its variously subnormal patients. These three vital elements to full recovery and re-entry to a higher grade of living are precisely what cannot be obtained by remaining longer in hospital, nor in the average household.

Community convalescence is economically and medically the soundest health measure awaiting general adoption—now that infectious disease prevention and social service are so well established. A few American cities are beginning to plan convalescent plants in their health and industrial programs, essentially along with hospitals, dispensaries, sanatoria, home visiting services, etc. All populous and fairly concentrated communities should so plan and provide, for their rating in public health will be more and more determined by their records in prevention, and in care of the subnormal borderliners.

The definite position of supervised country convalescence in the health-effort cycle may well be further indicated by examples: Great numbers of the shorter-term medical and surgical cases (exemplified by pneumonia, hernia and appendicitis) are given from one to four weeks of rest, grading into near normal activity, and sent back to full physical and social restoration; without such term many of these work too hard too soon and drift into relapse, semi-invalidism and low-grade living; they clog the dis-

pensaries and make incomes for the charlatans. Note that this very class is then best lifted back to normality by re-diagnosis plus a fairly long country re-construction plus right employment-placing and long follow-up; a result only attainable by having the convalescent home outlet. The country home relieves the hospital and the family and sooner and surer restores all forms of tuberculosis (excepting

litis and like protracted ailments. Furthermore, the term in the home is being much used as a testing of diagnosis and previous therapy, and of the patient's temperament and fitness for follow-up readjustments. The list of diagnoses for a year of six thousand admissions at the Burke Foundation includes about all the terms in medicine.

The above is the fairly understood and obvious convalescent classification; but quite equal in quality of result, and gaining in numbers with further experience, are the variously and atypically debilitated, nerve fatigued, anemic, under-nourished, depressed, disheartened and maladjusted folks who respond to a rest-cheer and re-training time in the country place so well that one in the work inevitably seeks more of them, as against other classes. It is too little recognized that plain overwork is a fact, and a medical and downward-progressive condition; convalescent homes only can give most of these the right treatment. It is just in this zone that the newer American types of homes are specializing and advancing into wider fields—in preventive and what we may call "hold-on" recuperations; and are promising to take no small part in our whole scheme of preventive medicine.



A croquet tournament with strong cottage rivalry. The grounds and equipment are made and kept in order by patients.

active pulmonary), heart disease, rheumatism and chorea (taken up to degrees of moderate crippling), many border nerve and mental states, thyroid disorders, orthopedics, empyema, lung abscess, nephrectomy, osteomye-

Westchester has within its borders more convalescent beds than any other county in the United States—about fifteen hundred (not all the year round); but with a few exceptions they are not for county patients. Be-

cause New York's six millions of people to find our area the best place for rest and recreation it should not be thought that the county inhabitants are in a uniformly highly elated and vacational condition, or that they do not need certain definite convalescent facilities to maintain a creditable state of the public health. How may this section, which will soon be holding a half-million people, work toward an adequate provision in this line? In three ways—(1) by getting *en masse* to more of the resident institutions, (2) by development of a convalescent branch to Grasslands, the County Hospital, and (3) through the eventual establishment of one or more private-corporate smaller specialized homes distinctively for county patients.

In 1915 the Burke Foundation, maintaining three hundred convalescent beds primarily for New York patients, offered use of a fair proportion to this county. The county has since agreeably availed itself of the opening, to the extent of twelve or fifteen beds average occupancy, and a total of thousands of patients. The county health workers in certain sections cooperate fairly well, while others rarely apply. This indicates how much convalescence is yet a matter of health education; and also that the county possesses in the Foundation a great restorative agency which



Men, convalescent from various ailments, in the occupational therapy shop.

but considering its broader phases, such as the homes' freedom from taxation, etc., it would seem that the county health authorities should press for a reasonable local use of many of these New York institutions, with a frank and valued reciprocation of service in ways that have already proved feasible.

To the able and ever progressive management of our large County Hospital a distinct provision for convalescents and other half-ill non-contagious patients has already forcibly appealed; they constantly make some

favorable opportunity to pioneer in county convalescence. Quicker and better restoration, the care of more patients and the tax-savings are arguments enough.

Women of means and high social betterment motives have been the leaders everywhere in founding small rest homes. There is every reason why this already crowding and semi-metropolitan community should have three or four of these for its own people. Health officers, physicians and lawyers are best able because of contacts, to divert thought and funds to this desirable purpose. Beginnings may be modest and comparatively inexpensive; full details for inception and procedure are available.

In conclusion: Future medical practice and public health routine must correct what Bryantwell calls the "clinical neglect of convalescents" and the borderlines of chronicity and invalidism. But any decided advance depends first upon the establishment of adequate country recuperational institutions, run on skilled specialized lines, and at low cost. Westchester County, the largest typical American suburban and part-rural community and approaching a half-million population, is full of convalescent homes, yet has scarcely none for its own people and is illy using what it has. No other advance at this time would more improve the community health, morale and general efficiency, with a large saving to workers, benevolent donors and to taxpayers.



Women's ball-throwing contest in a convalescent field day. Prizes were awarded.

it has so far failed to fully appreciate and utilize.

Some other smaller metropolitan homes located in our area are increasingly welcoming a few local cases; this question is complicated;

attempt to segregate this group within their hospital. A removed convalescent branch, of much cheaper construction and daily maintenance cost, is however recognized by them as the best solution. Here is a most

The National Health Library

Some five or six years ago four national health organizations, then in varying stages of development, each began to consider the value of adding a trained librarian to their respective staffs; the primary purpose of such library service in each instance being the immediate use of the office staffs. These four organizations—the American Social Hygiene Association, the National Committee for Mental Hygiene, the National Organization for Public Health Nursing, and the National Tuberculosis Association realized that a new literature was in the making in each of their respective fields and that an important function of the director of the health library would be to help to produce the literature of which there was such a crying need.

The cooperative adventure in librarianship that resulted is described by Florence Bradley, extension librarian of the National Health Library, in the *Library Journal* of February 1, 1923. Affiliation, she says, with public libraries was to save them the necessity of making the same unique collection of materials as that brought together by the social hygiene group, for instance. The beginning of the National Health Library was marked by the unification of the four societies named with the groups represented in the National Health Council. Through a common service committee, experts of the several groups were brought to function as specialists in the literature of their special fields, so that now a working arrangement is affected whereby public health literature as a whole is served by a staff consisting of three trained librarians, a library assistant, a stenographer, a typist, a clerk, a page, and on special occasions a cataloger.

The most unique thing about the budget so far is that 70 per cent of the income is expended for salaries, and nothing for books. Twelve per cent covers rent, and 18 per cent running expenses. While many of the most important additions to the library shelves are in pamphlet form, books are needed. The 648 volumes added last year were selected with great discrimination, and were contributed. Reference work is very specific and thoroughly practical. Bibliographies are prepared, and reading lists are sent out each month according to needs indicated by library correspondence.

To meet the urgent need growing out of the increasing emphasis on health education an extension service

has been developed. So far this has taken the general direction of (1) starting reference collections of health material, both pamphlets and books; (2) making health literature available through traveling libraries or extension divisions, this notably in Pennsylvania; (3) interpreting to small libraries, especially rural libraries, the books of fundamental importance which should be considered in relation to annual book budgets, notably in Oregon. The most unique service is rendered in the newer administrative projects about which no literature exists.

Two groups are served: the trained public health worker and the interested layman, this latter group including the school teacher in search of health primers, the mother wanting material on child care, or the club woman trying to inform herself on sex education. For the public is becoming community-minded, and the needed service that interprets health information that is fundamentally scientific and unquestionably authoritative and that will lead to inspiration and achievement in public health activities is an altruistic as well as an educational enterprise.

Where Physical Training Overcomes Fear



Albert R. Dupont Photo.

The handicap of the blind is not so much physical as psychic, for the retardation of the blind is due to their necessity of evolving new means of communication, and finding self-expression in spite of the inhibiting influences of their unexplored, and more or less to be dreaded environment.

THE education of the handicapped, whether the inhibiting defect be the loss of a sense—as of sight or hearing—or the maiming of a limb, resolves itself into getting the patient to accept the situation, to cease to regard himself as “different,” and to become social in his instincts and expression.

It was a great boon to the blind when they were enabled to read through educating their sense of touch to detect the word signs of the Braille system of printing. The means of educating the blind were further extended through phonographic methods. But the chief service of education is to enable people to live to-

gether in mutual sympathy and understanding and it may thus well be regarded as an even greater achievement so to attune these handicapped children through a sense of rhythm that they become capable of cooperative activities and of social response.

Miss Alma Guy, director of recreation, of the New York Lighthouse for the Blind, has for the past six years conducted her work so effectively that the blind are enabled to interpret their thought by action. The girls have learned to play. In the illustration given three girls totally blind and one partially blind are seen in a figure of an intricate rhythmic dance.

The Dispensary and the Out-Patient Department

Describing Organization of Welfare Work by the New York City Hospital

By CHARLES B. BACON, M.D., MEDICAL SUPERINTENDENT, THE NEW YORK CITY HOSPITAL, NEW YORK CITY.

THE historical incident associated with the development of every activity is marked by a period of beginning, progress, achievement, and finally its maintenance and operation; specifically, the performance of its particular function. Each period requires earnest thought, wise judgment, cooperation and interest between individuals and groups of individuals. It is of extreme importance that the personnel be composed of men and women disposed and competent to judge between an actual need and a fad or something that is popular yet not carefully conceived, and for which no actual imperative need exists. The City Hospital Dispensary and Out-Patient Department is a concrete example of a carefully considered and actual need extending over a period of many years.

Our Beginning

I well recall the discussions and events that took place years ago regarding the need and development of this dispensary, the different ideas expressed, and finally the elimination of many of these ideas. Out of these deliberations evolved a definite policy and fixed program. Our problem was made somewhat more complex by reason of the fact that the City Hospital, the parent institution, is located on Welfare Island, while our object was to establish, maintain, and operate a dispensary on Manhattan Island. The question of transportation and operation of this activity, thus removed, yet each service of necessity directly articulated with the corresponding service and departments at the hospital, caused us to delay action until access to and from the hospitals located on Welfare Island to Manhattan and Long Island could be effected by way of elevator service to the Queensboro Bridge. This having been accomplished, no time was lost in carrying out our dispensary program.

No municipality known to me possesses a more ideal hospital location than the City of New York on Welfare Island, where two of our largest general hospitals are located, also a special hospital for neurological and infirmity patients, and the New York

City Home for the Aged and Infirm (Manhattan Division). Furthermore, the dispensary has an ideal location from this point of convenience and accessibility to the hospital, also from the viewpoint of community service. The administrative and professional staffs and co-workers build the foundation and add something to its construction during each succeeding administration. Thus the work of successive commissioners is cumulative and, the ultimate objectives for which we have striven are finally attained.

The need for this new activity was brought to the attention of the Honorable Bird S. Coler, commissioner of the Department of Public Welfare, during the early part of his administration; by reason of his interest, cooperation, and initiative, its achievement and establishments in connection with the New York City Hospital were made possible. This activity marks a new and notable epoch in the history of the New York City Hospital—a history now extending over a period of approximately one hundred years, and made possible by the foresight and wisdom of men and

women, professional and lay, who during those early years realized that increased facilities, improved methods, and humane treatment were the right of the dependent sick and injured in New York City. To be convinced of this fact one need only scan the early history of the old Bellevue Hospital.

Marked Progress Made

On August 1, 1920, the elevator service from Welfare Island to the Queensboro Bridge was placed in operation, thereby making City Hospital directly accessible to Manhattan and Long Island. This elevator service is in conjunction with the new Island Storehouse and is, in fact, an integral part of it. Three electric freight elevators equipped to handle ambulances, fire equipment, and apparatus, trucks, automobiles, etc., are in constant operation, together with two passenger elevators. This service furnishes ideal transportation to and from the hospital, and makes the dispensary and hospital directly accessible—the distance being covered in approximately five minutes.

Inasmuch as the Queensboro Bridge



Section of the general waiting rooms, together with offices of the registrar and social service nurse.



A portion of the medical clinic rooms. Each clinic room is immediately accessible to the respective service clinic waiting rooms.

starts from Fifty-ninth Street and Second Avenue, a dispensary located in this vicinity at once became the place of choice. Fortunately, the city already owned property consisting of a four-story and basement brick building at 220 East Fifty-ninth Street, between Second and Third Avenues, less than a block from the entrance to the Bridge. From the point of accessibility, this location is most favorable. The Fifty-ninth Street surface cars, running east and west, pass the main entrance to the dispensary. One-half block to the west is the Third Avenue Elevated Railroad, and Fifty-ninth Street Station, also the Third Avenue surface car lines running north and south. One block farther west is the Lexington Avenue surface lines, running north and south, also station to the Interboro and Brooklyn Rapid Transit subways. To the east, the Second Avenue Elevated Railroad, with station at Fifty-seventh Street; also the Second Avenue surface lines running north and south.

The building has been extensively remodeled in accordance with a carefully prepared detail and plan, with the result that it now affords a physical plant ideally adapted for a dispensary and out-patient unit. Modern conveniences are afforded for each dispensary service. A well planned and equipped registrar's office, social service and follow-up department, pharmacy, and laboratory, with quarters for a lay staff to care for the building,

and a professional staff to receive emergency calls at all times, are provided. The several clinic rooms are separated from one another by wood and ground glass panel partitions. Ample waiting rooms afford separation for men and women. The rooms are well heated, lighted, and ventilated, and provided with running water. All floor surfaces are covered with linoleum. The equipment throughout is

new; carefully selected, specified, and purchased. Electric sterilizers have been installed in all the surgical and operative clinics. The visitor is at once impressed with the completeness and orderly arrangement of the building, its equipment, and the well-trained, efficient staff of workers.

A carefully planned medical record room has been installed, and all the record forms of each department adhere to a definite color scheme, the records of each distinctive from those of other departments. There are ten professional services, each in charge of a director of service, with a chief of clinic, responsible to the director of service, who visits the dispensary on his regular clinic days. The chief of clinic is entitled to as many assistants as may be necessary to properly care for the work. Furthermore, the chief of clinic is nominated to the Medical Board by the respective divisions on which he serves, and the position carries with it that of "Assistant Attending" to the same service at City Hospital.

The hospital is supplied with a complete dispensary record of each transfer; also the dispensary of each patient discharged from the hospital and referred to the dispensary. Furthermore, each discharged patient referred to the dispensary is presented with a reference card.

A brief description of the general plan, floor by floor, is here given.

Basement.—North (front) is located the drug store—well lighted,



Section of the eye, ear, nose, and throat clinic. In connection and in direct communication with this clinic is a well equipped dark room.

ventilated, equipped and furnished—in charge of a licensed pharmacist. Drugs and supplies are sent by the pharmacist by way of dumb-waiter to the nurse in charge of the various clinics. At the south (rear) is located the heating plant, janitor's storage, supplies, etc., and exit to large enclosed area.

First Floor.—North is the main entrance to the clinic, through enclosed hallway. Immediately to the left is the office of the registrar. Here all applicants are interviewed, records made, filed, and information given, also general supervision exercised by registrar. Immediately adjoining this room, and to the left, is the office of the social service nurse. To this nurse is assigned the usual duties in connection with social service and follow-up work. The entrance and these offices occupy the entire front on this floor. Large, conveniently arranged and well furnished general waiting rooms are centrally provided. At the south end are toilets and wash rooms, together with small isolation room and rear exit, also telephone service.

Second Floor.—Patients are assigned by nurse from the general waiting rooms to the clinic waiting rooms, as requested by the chief of clinic or his assistant. Extending along the north of the second floor are the clinic rooms for medicine and

pediatrics (three rooms). Intercommunication is afforded from one room to another, also from each room to the waiting room. Extending along the south end of this floor are the clinic rooms for surgery, gynecology, obstetrics, and neurology (three rooms), and waiting room. Utility rooms, closets, and wash rooms, are also afforded.

Third Floor.—To the north are clinic rooms for eye, ear, nose and throat (three rooms), together with waiting room and dark room connected with eye clinic. To the south are clinic rooms for genito-urinary conditions, syphilis, and dermatology—three rooms—together with waiting

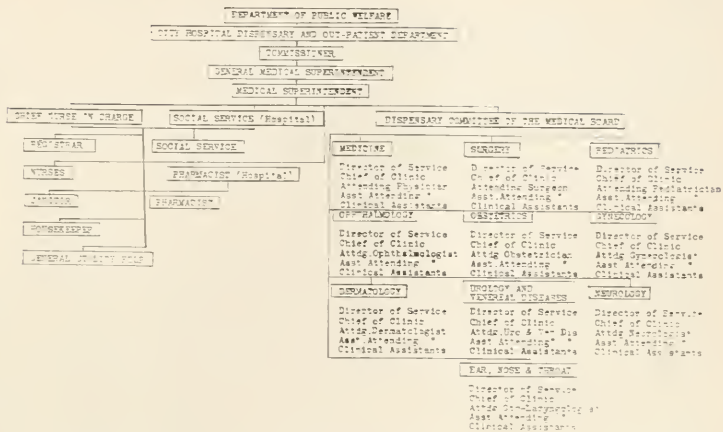
room. Utility rooms, closets, and wash rooms are also afforded.

Fourth Floor.—At the north a large well lighted, ventilated, and equipped laboratory extends along the entire front. At the south section, a suite of rooms for caretaker and resident help, together with two rooms for physicians, are provided.

A Noteworthy Achievement

The personnel assigned to this department have been carefully selected from among the nurses and doctors trained at the City Hospital, and the whole personnel constitutes a very capable, efficient and sympathetic staff. The dispensary organization is directly articulated with the corresponding organization at the hospital. Experience shows that this organization is logical, direct, efficient, and we believe represents the modern organization of a dispensary operated in connection with a large general municipal hospital. Patients requiring x-ray, special laboratory, and dental work are referred to the hospital as are also laboratory specimens other than called for in the routine work, such as smears, urine, sputum and stools. The nurses assigned to this service reside in the nurses' home, on the hospital grounds. Transportation is provided for them in enclosed car, morning, noon, and night. There is kept in the registrar's office a daily attendance record of the professional and administrative personnel attached to the dispensary, and we propose in the near future to hold monthly medical staff conferences.

The Dispensary was formally opened July 24, 1922. The number of applicants, general and special treatments, operations, advice, and relief



Plan of organization and authority of personnel. The scheme definitely places authority and facilitates the service assignments.



Section of one of the surgical clinic rooms.

given, represents a steady growth. Furthermore, patients requiring hospital treatment, particularly tonsils, adenoids, bow-legs, and eye conditions, have been referred to the hospital, and patients are frequently discharged from the hospital, and referred to the dispensary for subsequent treatment, thus shortening the period of hospitalization.

The chart appended shows the plan of organization and authority. This is definite, compact, and directly places responsibility and authority. As a working plan this scheme is as near the ideal as any thus far promulgated. Each member of the administrative and professional staff is provided with a copy of this organization chart, the service assignments, and rules governing the operation of the dispensary.

With the dispensary as a nucleus, the good that is in the human heart can shine out into the homes of the poor and sick residing in the community. Here we are endeavoring to cultivate the spirit of service, to teach preventive medicine and hygiene, to prevent diseases, to alleviate and cure disease, to afford relief, and to follow up needy cases. With all, to educate and deal sympathetically with the needy and deserving dependent sick and injured. In brief, it is our desire to make this a model, municipal, hospital dispensary and out-patient unit.

Psychiatric Social Workers Organize

Psychiatric social workers through the country have organized as a section of the American Association of Hospital Social Workers, to be called the Section on Psychiatric Social Work. This action, planned and discussed, at the time of the National Conference of Social Work in Milwaukee, 1921, was put into effect during the 1922 Conference at Providence, when the American Association of Hospital Social Workers at its annual meeting formally adopted the section.

Active membership in the Association includes those that have been employed for a year in social work in a hospital or dispensary. Social workers employed in clinics not associated with hospitals or dispensaries or with mental hygiene societies are admitted to associate membership. The requirements for active membership in the newly organized section are based on training and experience, and there are no associate members. Graduates of recognized training courses in psy-

chiatric social work of not less than nine months duration are eligible after they have held a position in psychiatric social work for one year; graduates of schools of social work who have not taken a special course are eligible after two years in a position in psychiatric social work; and persons who have not taken formal training but met certain educational requirements are eligible after four years of successful accomplishments in psychiatric social work.

The objects of the Section are (1) to promote association of psychiatric social workers and (2) to promote standards in psychiatric social work. Meetings of the Section will be held when the Association holds its annual meeting during the Conference of Social Work in Washington, May 16 to 23. The president of the executive committee of the new section is Mary C. Jarrett. Inquiries of all kind may be addressed to the secretary, Mrs. H. C. Solomon, 74 Fenwood Road, Boston, Mass.

Bedside Care by the Municipality

Merrill Champion, in a discussion of nursing service (*P. H. Nurse, Feb., 1923*) says that "Plain common sense as well as logic leads to the conclusion that the path of wisdom lies in the

direction of two types of service; one educational, under the board of health; one, bedside nursing under a private agency, the latter of course doing all the educational work it can in connection with its work of treatment." The article is an interesting brief for the above statement which closes a paper advocating a system opposed to the recommendation of the report of the Committee on Nursing Education of the Rockefeller Foundation (*Nation's Health, July 1922*) in favor of generalized nursing service.

Health Score for School Children

Believing that school children should have some health standard toward which they may strive, Clark and Lowry have prepared a score, (*Pub. Health Rep., Feb. 16, 1923*). Opposite each child's name on the health chart is placed a red star in the column marked "Eyes" if on the first examination the child's vision is up to the specified standard. If the vision is found defective but later corrected the child is then entitled to a blue star. Similar markings indicate the status of the child in relation to ears, nose, throat, mouth, skin, chest, vaccination and nutrition. When every space is filled the child receives a gold star.

Hamline Church Health Center



Underwood & Underwood
The mothers in the neighborhood of Hamline Church, Washington, D. C., who have food problems or other difficulties in rearing their children which require expert guidance, can find the necessary supervision at the Hamline Church Health Center, whose practical interest in welfare has taken the form of a community health enterprise.

The Teaching of Hygiene to College Students*

Being a Committee Report to the American Student Health Association

By DR. JOHN SUNDWALL, PROFESSOR OF HYGIENE AND PUBLIC HEALTH, UNIVERSITY OF MICHIGAN, ANN ARBOR, MICH.

AT THE annual meeting of the American Student Health Association held in New York City, December 26, 1921, a motion was unanimously carried that the president appoint a committee of five to consider the subject of hygiene teaching in colleges and universities, and to recommend to the Association the contents of a general course in hygiene which would be of greatest value to the average college student. According to the secretary, "the committee should concern itself with the contents of a course in college hygiene, giving a practical working scheme, methods of presentation, and number of hours devoted to the subject." The committee was instructed to make a report at the annual meeting of the Association to be held in New York City, December 26, 1922.

President Raycroft appointed the following committee: Drs. T. A. Storey, College of the City of New York, T. A. Devan, Rutgers College, E. Esquerre, Carnegie Institute, A. Kerr, Cornell University, and J. Sundwall Chairman, University of Michigan.

The committee submits the following report:

Obligations to Teach Hygiene

When a university or college confers a degree it underwrites the young man or the young woman on whom the degree is conferred. It says to society, "Here is one who is fitted to serve or lead intelligently." But service or leadership on the part of the graduate will depend on the energy that his body machine can generate and maintain. Society is cheated if the college underwrites an impaired human motor which will break down soon after it enters the traffic of life. Therefore, it is imperative that an educational institution concern itself with helping its students build up and keep up high-powered, efficiently running, energy-generating motors of the first magnitude, and that it teach them how to maintain these—that is, how to keep up health and physical efficiency through college years and

through the years of service ahead of them.

The college student should be well grounded in the fundamentals of health promotion and disease prevention, not only for his own preservation and efficiency but also for the welfare of society in which he will serve later on. College students usually become teachers or leaders in their communities. Therefore, it is imperative that each student should be given a clear grasp of what is essential and worth while in community health work.

With a view of meeting these obligations, the committee recommends that the American Student Health Association urge all colleges and universities to adopt and put into practice a scientific and systematized course in hygiene. The committee recommends further that this course be made a requirement for all college students and that it be taken by college students as early in their academic career as possible—preferably the freshman year.

Extent of Course.—The length of the course—one or more terms, and the number of hours per week, must of necessity be determined by local conditions. Some institutions now devote seventy-two hours of class work to this subject. The other extreme is seen in those colleges and universities where no hygiene is given. Between the two, there is every gradation. It would be unwise to recommend a maximum number of hours since there are practically no limits to which the study of hygiene and public health can be made profitable. It is with the minimum number of hours that we should be concerned. The committee, therefore, recommends that this minimum should be two hours per week for one semester or three hours per week for one trimester or quarter. The total number of class room hours then would range from thirty to thirty-six. It should be emphasized here that more time than this could be used advantageously.

Presentation.—A course in hygiene to college students should be made as scientific, practical, and definite as possible. It should be fully illustrated

by charts, models, lantern demonstration, and by experiments. For each hour of class room instruction, two hours of outside preparation—home or library study—should be prescribed. Lecture notes should be handed in and graded. One mid-term and a final written examination should be required in order to pass the course.

The same study, intelligence, dignity and respect should be accorded the presentation of college hygiene as are now generally given to the teaching of the other sciences in the college. Instructors in hygiene should be chosen with the same care and consideration of training and teaching ability, as are instructors in the other sciences. Similar academic rank and dignity should be accorded to the teaching staff of the department of hygiene as are accorded to the teaching staffs of other departments in the college.

The department of hygiene should be closely correlated with other interests and activities concerned with the health of students. A student health service offers an unusual opportunity for acquainting students with the machineries of modern public health. One may, therefore, regard the student health service, where established, as an immensely important teaching instrument or laboratory. Departments of hygiene in college should use their influence toward establishing efficient health services where these do not exist.

Size of Classes.—The same regard for efficiency of instruction, with particular reference to the number of students enrolled, must be held for courses in hygiene as for instruction in the other sciences. For the lecture work, a large number of students could be brought together, but for quizzes and other work in connection with the course this large group should be divided into small sections.

Essentials of Course

The Committee feels that the content of the course should be such that it would acquaint the average college student with the fundamentals of (1) health promotion and (2) disease prevention, both from the standpoint

*Presented before the fourth annual meeting of the American Student Health Association, Detroit, Mich., December, 1922.

of the individual and the community.

(1) By health promotion is meant the building up and the maintenance of a sound, active, vigorous and harmoniously developed body. Other synonymous terms used to designate this phase of hygiene teaching are "personal hygiene," "individual hygiene," "physiological hygiene." The objectives to be reached in the teaching of health promotion are (a) to inculcate in the student an impelling and lasting desire to achieve and maintain positive health and physical efficiency and (b) to acquaint him with the various methods by which these may be gained.

The student must be made to realize that, like an automobile, his own body may be ready for the "scrap heap" in a short time or it may be made to run smoothly and efficiently for an indefinite period; that the outcome will depend largely upon his knowledge of the structure and functions of his body machine and the intelligent care he gives to it; also that every individual making up a community should be given an opportunity to develop and maintain positive health, both for the well-being and happiness of the individual concerned and for the economic efficiency of the community.

The fact must be emphasized that *positive* health does not mean merely freedom from disease, but the best possible physical condition, the greatest possible capacity for activity, happiness, and physical efficiency.

(2) In the field of disease prevention the student must be impressed with the fact that no matter how intelligently and vigilantly one may develop and maintain the best physical condition possible, this does not prevent one from contracting communicable diseases if exposed to them—that if one's cook or one's waiter in a restaurant is a typhoid carrier or one's bed-fellow has active tuberculosis, or the fellow at the next desk in the office has diphtheria, these diseases may be readily contracted no matter how healthy one may be. The necessity of both individual and community concern for disease prevention must be emphasized, and the necessary measures for disease prevention and control brought out.

Contents of Course

It is not the purpose of the committee to present here a detailed syllabus on hygiene teaching. The details of a course must necessarily be left to the intelligence and discretion of the teacher. Again there is danger of over-standardization. Many factors

will determine, in a large measure, the details of a course in college hygiene and the emphasis placed thereon. The number of hours allotted to college hygiene, the geographical location of the college, prevalence of endemic diseases, communicable diseases peculiar to the locality, urban or rural location of the college, environment of the college, chief industry of the section influenced by the college, seasons, and so on—all are factors which will necessarily influence the order of presentation, the details of, and the emphasis on a college course in hygiene.

There are, however, certain fundamental matters concerned with health promotion and with disease prevention that should be presented and emphasized in every course in college hygiene.

I. The following objectives should never be lost sight of in any college hygiene course:

(1) Instilling in every student an impelling desire for positive health and physical efficiency, not only during student days but in later years as well—both for his own happiness and success and as an obligation to society from the standpoint of economic independence and service to society.

(2) Appreciation by each of his responsibility and need of concern for, not only his own health but that of others making up his community and inter-relation of these.

II. *General Considerations.* (1) Past attitudes and activities towards health and disease: Brief historical references to "demonological" and "punishment by God" theories and attitude of resignation; filth and spontaneous generation theories; era of environmental regulation and sanitation; era of Pasteur and bacteriology—defensive era; followed by era of fighting disease—offensive attitude; past public health activities concerned almost entirely with the prevention and control of diseases.

(2) New conceptions of health interests and activities: (a) Positive health and physical efficiency—in addition to fighting disease, a new and important objective in hygiene and public health. Differentiation between positive health and absence of disease. (b) Differentiation between health promotion and disease prevention.

III. *Health Promotion.* Personal, individual or physiological hygiene. Facts or matters which the individual himself must know and must practice in order to maintain positive health and physical efficiency.

The "Health Promotion" aspects of the subject may well be considered

from two standpoints: (A) General measures that concern the well-being of the body as a whole and, (B) Special hygiene of organs and systems.

We have gained sufficient information through studies of the findings of group physical examinations—draft, schools, industries, insurance, etc., and through analyses of our national morbidity and mortality statistics, to warrant the recommendation that the general measures be given adequate consideration and emphasis. There is danger that when health promotion is presented entirely from the viewpoint of special hygiene of systems and organs, unimportant details will be emphasized and the knowledge gained will be more or less fragmentary and therefore not interrelated. However, it is very difficult to draw any line of demarcation between general measures and special hygiene of systems. Many of the former are more or less tied up with the latter. Furthermore, many teachers prefer to present these general measures in connection with the systems of the body and vice versa. The general measures are, therefore, set apart solely with a view of calling attention to their importance.

(A) General measures: (1) Food and nutrition: The balanced diet, quantitative and qualitative daily needs, including water, weight, overindigestion, undernourishment, deficiency diseases. (2) Air. Ventilation, temperature, humidity, air in motion, air pollution, climate and health. (3) Physical activity and exercise: Strength, endurance and fatigue. (4) Rest and sleep. (5) Bodily poisons: Endogenous and Exogenous—with particular reference to focal infections, auto-intoxication, alcohol, drugs, patent medicines. (6) Degeneration diseases. Role they play in our nation's morbidity and mortality. (7) Shelter. Home construction, clothing. (8) Mental hygiene: Emotional instability, psychoses and neuroses, rationalization, social adjustment. (9) Prevention and correction of bodily defects. Studies of draft examination, school examinations, of other age groups. (10) Physical examinations—Annual overhauling: Its importance in relation to the early detection of the degeneration diseases. Its relation to life extension and longevity. (11) Sex Physiology and Hygiene: Sublimation of sex thought, imagination and desires, continent life and the single standard of morality, penalties of illicit sexual intercourse. Venereal diseases. (This as well as (13) may follow B. 4)

(12) Heredity and Eugenics: Role of heredity and environment, Mendel's Laws, transmission of defective qualities, etc. (13) Cancer and Goiter, especially where it is endemic, may well be regarded as important consideration for the health promotion aspects of a course in college hygiene. (14) Accidents and Injuries: "Safety first" and first aid.

(B) Special hygiene of systems of organs. (1) Digestive system, oral hygiene. (2) Respiratory system. (3) Skin and appendages. (4) Genito Urinary system. (Sex hygiene may be considered here.) (5) Special senses: Eyes, ears. (6) Skeletal system with particular reference to posture, feet. (7) Cardiovascular system. (The degeneration diseases may be well introduced here.) (8) Muscular system: The general measures of exercise and activity may be considered here. (9) Nervous system. (Mental Hygiene may be presented here.) (10) Glands of Internal Secretion.

Just how much emphasis should be placed on the anatomy and physiology of the various systems of organs must be left to the teachers' discretion. The various training of the student, among other factors, should be taken into consideration. At any rate, care must be taken not to weary the student with unimportant and burdensome details in anatomy and physiology. This has been the chief fault with our past attempts at teaching personal hygiene. Furthermore, there is danger of placing too much stress on non-essentials and minor matters. We must bear in mind that there is no other subject in the curricula of schools and colleges which is so saturated with empiricism and fadism as is personal hygiene. The truth is that we still know comparatively little relative to the hygiene of organs and systems of organs in general. It is imperative that only the important and really known and accepted facts be emphasized.

IV. *Disease Prevention* (Group and Community Health) with particular reference to the prevention and control of communicable diseases. This would naturally follow the health promotion aspects. It might be, however, that, owing to the presence of epidemics or to certain local conditions, the presentation of communicable diseases and community health should precede "Health Promotion." Again occasions may present themselves at any time during the course which would call for a consideration of community health.

(1) Nature of communicable diseases: (a) Historical conceptions, mi-

asmatic theories. (b) Germs—nature of, classification, distribution; pathogenic organisms—bacteria protozoa, parasites. (c) Epidemics and pandemics, some historical considerations.

(2) Source of disease: Generally speaking man is the chief source, animals infrequently. Disease kept alive in community by carriers, missed cases, prodromes, convalescents; passed from infected individual to another by means of contact infection.

(3) Diseases spread by: (a) Discharges from mouth and nose. (b) Alvine discharges. (c) Discharges from lesions. (d) Blood transfers (Yellow fever, malaria, etc.).

(4) Contact Infection. Direct, indirect.

(5) Routes taken by Communicable Diseases. (a) Close Social Contact, the broad paved highway over which the important diseases, especially in our latitude, travel. (b) Water. (c) Milk. (d) Food. (e) Insects and animals.

(6) Blocking the routes taken by communicable diseases. (a) Diseases for which we have special or specific prophylactic treatment. Special consideration of Immunity, Vaccines, Vaccinations, Serums, Specific drugs, etc. Relation of animal experimentation and vivisection to progress in curative and preventive measures. (b) Close social contact and intercourse: Difficult to block as people object to laws regulating their personal behavior unless they understand the significance of these laws. Hence education of masses along the lines of contact infection, with a view of avoiding or minimizing the dangers thereof is the first essential in blocking this route; values of isolation, quarantine, handkerchief, masks, clean hands, etc. (c) Water: Boiling, storage, filtration, chlorination, etc. (d) Milk: Certified and inspected milk, tuberculous cattle, handling and shipping, pasteurization. (e) Food: Dangers of carriers infecting raw foods, hence examination of food handlers, food infections, meat infection, canning, food sterilization, etc. (f) Insects: Destruction of flies and other insects, privies, drainage and oiling of swamps, insecticides, destruction of disease carrying animals, etc. The important progress along these lines.

The committee feels that if due consideration and emphasis are given to these various topics as suggested in this outline of a college course in hygiene, the student should have a general grasp of important factors that, if wisely applied, will contribute to his health and welfare and that of his

community. Experience has shown that these facts can be amply presented and considered in a course of from thirty hours to thirty-six hours including outside preparation.

When the time allotted is sufficient the principles and practices of applied hygiene may well follow the general consideration of the principles of health promotion and disease prevention.

V. *Applied Hygiene*. By applied hygiene is meant the application of the principles of health promotion and disease prevention to certain age periods, units or groups of society. The application of these principles are modified and adjusted in order to meet the particular needs of these age periods or groups. (1) Child hygiene. (2) School hygiene. (3) Adult hygiene. (4) Industrial hygiene, with particular reference to occupational diseases. (Of particular value to college students who later on in life will become factory administrators.) (5) Rural sanitation. (6) Urban sanitation. (7) State, national, and international health measures. (8) Vital statistics: Bookkeeping of health of community and its importance.

Further, it would be well to acquaint the student with the various agencies or machineries engaged in health work. (9) Official Health Departments. Functions and Activities of (a) city, (b) county, (c) state, and (d) federal. (10) Voluntary health departments. How these function and can be utilized. (a) Red Cross. (b) International Hygiene Board. (c) National Tuberculosis Association. (d) American Public Health Association. (e) The more than eighty national associations which deal with the various aspects of applied hygiene.

Most of the "co-eds" at the University of Texas who are working for a letter in athletics this year have pledged themselves to observe "Hygiene Month" in order to obtain extra credit. In making the letter awards, a point system is followed by which credit is given for athletic training done by women students under the auspices of the Woman's Athletic Association. By observing Hygiene Month, the girls pledge themselves to eat three regular meals a day and nothing before or after meals except milk, fruits or malted milk. Other requirements are, at least an hour's exercise a day, a daily bath and shower, and eight hours sleep six nights a week. At the end of the month if the candidate is able to state that she has not violated any of the rules, thirty points are placed opposite her name on the athletic record.

Steps Forward at the School for the Deaf*

By W. S. CAMP, EDITOR OF THE ADVANCE, JACKSONVILLE, ILL.

WITH the advent of Col. O. C. Smith as managing officer of the Illinois School for the Deaf late in October, 1921, there was inaugurated an era of progress probably unprecedented in the history of the school, which is the oldest state institution in Illinois.

Reorganization of the school proper, as well as changes of importance in the physical equipment of the institution, have been effected, and many further improvements are contemplated, depending largely upon the action of the legislature as regards appropriations for their carrying out.

The forces of the institution were reorganized in a manner calculated to bring about efficiency of operation and to place responsibility where it always should have been—upon the shoulders of those in charge of the several departments. The institution was organized into seven departments for the purpose of administration. The departments were as follows: the school department, the clerical and supply department, the household department, the engineering department, the farm and dairy department, the social welfare department, and the hospital department. Through the operation of the new organization with responsible heads in charge of each department, the managing officer is in a position to place responsibility for the progress and welfare of each department; and in addition he is so placed as to avoid the annoyance of the countless petty details which are so common to the administration of the affairs of state institutions. Under the new system all details are given attention by the heads of departments and matters are not presented for the consideration of the managing officer unless discord or other intervening handicap develops, or their importance justifies his attention. The new system has worked well and the results attained have in every way justified the inauguration of the plan. The School for the Deaf is primarily a school, and every endeavor is directed towards enhancing its value as an educational institution. This aim has been impressed upon all officers, teachers and employees of the institution.

One of the most important outside

works connected with the school is the effort put forth to secure the attendance of all the deaf children of the state who are of school age, which under the Illinois statutes is from seven to eighteen years. In this endeavor is engaged the head of the social welfare department, Miss Grace E. Hasenstab, thoroughly familiar with the deaf, who devotes full time to looking after the deaf children and taking an interest in the welfare of the deaf of the state whenever her services are requested.

The attendance at the school is now larger than it has been at any time during the last decade and it is believed the number of pupils enrolled will soon be more than 450. Many of these children are new pupils and a great many of the first-year group are in the school as a result of the efforts put forth by the social welfare department. The interest of the social welfare worker does not conclude with the arrival of pupils at the school; she is busily engaged in behalf of the children at all times. She acts as interpreter, visits the school-rooms as occasions require, assists the literary societies in their work, attends to much correspondence with parents, and looks into home conditions in cases which justify investigation. She also is charged with giving attention to problems relating to the welfare and success of pupils going out into the world after their school days are ended. She is the means of communication between the school and the home relating to the health of the pupils.

The school department is the most important of all. Its curriculum includes the common school branches taught in the public schools. In addition there is given opportunity to perform shop work calculated to enhance the chances of those going out from school to make a living. The school also supports a class engaged in post-graduate work, intended to equip the pupil for entrance to Gallaudet College at Washington, D. C.

There are maintained in connection with the school several shops designed to give girls and boys working knowledge of trades and vocations. These shops include a well equipped domestic science department, a sewing department, a millinery department, an art department, a photographic studio, a shoe shop, a wood working shop, a paint shop, a bakery, and a print shop. There is organized and in working trim a class in the machine shop under the direction of the chief engineer. A class in farm and ganization. Other lines are soon to be added, including concrete construction work. All of the shops are well equipped with the modern machinery and tools desirable in a first class working establishment. At the head of each of these shop forces is a teacher qualified for the work.

During the last year the faculty of the school has been reorganized. The resignations of the eight teachers accepted by the managing officer at the close of the last school term. These places have been filled by teachers who have had special training for the work or those experienced in teaching



The Illinois School for the Deaf, Jacksonville, Ill.

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Health Conservation Through the Ages*

Nearly All Die Prematurely. Only the Exceptional Person Lives a Normal Life to Its Conclusion

By EUGENE R. KELLEY, M.D., STATE COMMISSIONER OF HEALTH, BOSTON, MASS.

TO PRESENT a comprehensive picture of what is implied by the extremely common term "conservation of health" is a difficult matter. When this topic is under consideration we are not dealing with something to be weighed by the ton, measured in board feet, or calculated in kilowatts, but with a subject whose inherent qualities defy exact measurement or even precision of definition. It is a subject concerning which, curiously, almost everyone has some rather definite convictions, but one in which the formulae of one group may be entirely rejected by another group. As soon as the value of a scientific fact in preventing disease or increasing vitality has been adequately demonstrated, one type of human mind concludes that this fact or discovery ought to be forthwith applied to the entire population willy-nilly. But there also exists another type of mind that tends to consider all health work as partaking in varying degrees of the faddish in quality and to look with skepticism upon all alleged advances in health conservation.

Between the two extreme views, that of the impractical enthusiast on the one hand and of the sanitary cynic on the other, must lie the real, solid field of accomplishment in health conservation. There is, an actual danger from unbridled enthusiasm in health

Obviously there is sufficient scientific knowledge extant, if intelligently and universally applied, to prolong the average human life many years, and to make all these years much more abounding with the joy of living that accompanies top notch physical condition than is the case with the average person to-day.

Whereas the average American life expectancy is now probably in the neighborhood of fifty years, there is no insurmountable obstacle in sight to increasing that average expectancy by at least twenty years in the next four generations. Surely this is a goal worthy of public health work.

conservation proposals. It is conceivable that human life might become so completely safeguarded against accident, infection, fatigue, systemic toxemias, or mental and nervous strain that existence itself would become so monotonous and boring as to be almost not worth while to a large proportion of individuals. On the other hand, the carrying out of the doctrine of individual "self determination" to the extent of refusing to admit the truths of science or of refusing to admit the existence of any obligations on

the part of government to citizens, parents to child, employer to employee, or individual to the community, in health matters, is a terrible thing to contemplate. Yet there are elements in our national life, some active, noisy, self-seeking, others earnest and fanatically sincere, who unite in propaganda whose objective is nothing less than the destruction of all governmental or organized private efforts for the conservation of health.

Health conservation has one underlying peculiarity which is shared by only a few of the other subjects concerning which conservation is a live issue. The conservation of health can never be completely achieved in its broadest sense by statute or by the expenditure of money alone, important as both these considerations are in any sane national health conservation program. The conservation of health depends in the last analysis upon the conscious desire and conscious voluntary response to that desire by animate, free agent, human units acting sometimes collectively, sometimes as individuals.

It is noteworthy that this whole subject is of remarkably recent origin.

It has been aptly said that the only guide we really have in planning for or in predicting the accomplishments of the future is the experience of the past. Only by tracing back to its beginning can the present structure of health practice be properly evaluated, present problems seen in perspective,

*Read before the American Association for the advancement of Science, Boston, Mass., December 27, 1922.

or future trends even tentatively predicted.

Down to relatively recent days two prevailing theories fought for control of communal and personal health policies. The one that gradually predominated and settled for centuries like an incubus over all attempts at advance was the theory or belief that all illnesses, pestilences and deformities were a direct manifestation of Divine wrath and hence that it was nothing short of impiety to make any attempt towards their control. This theistic point of view reached its climax in the latter middle ages and is perhaps nowhere more graphically expressed than in the words of an orthodox physician of the city of Reggio, Italy, when the reigning dukes, (brothers and apparently men in advance of their times) during a plague epidemic, introduced the revolutionary procedure of forced isolation of the sick from the remainder of the people, with the further drastic provision that if any parish priest or civic authorities failed to report cases coming to their attention *at once* they should suffer the death penalty. All this occurred in the year of our Lord, 1374, and the comment of the orthodox physician of that day is as follows, "And I saw in this same year that these orders were observed in Reggio for *which cause* all were more grieved and terrified than by the fear of the pestilence, which, *when God permits it*, cannot be arrested."

The type of mind which sought for rational and natural causes as an explanation of pestilences and epidemics was always hopelessly handicapped by the lack of any concept of the nature of microscopic life. Hence for centuries the scientific world elaborated and discussed theories of "miasmas," "atmospheric corruption," and the like which make pathetic reading today in their blind gropings for a natural explanation of the destructive whirlwinds of epidemic disease which periodically devastated the ancient and medieval worlds.

Modern Methods Begin

Modern preventive medicine or hygiene may really be said to date from the discoveries of Pasteur in the world of bacteriology. It was not until the late 80's of the last century that the leaders of clinical medicine in either Europe or America can be said to have generally accepted, with all the revolutionary implications contained therein, the demonstration of the existence and practical significance in health or disease of the bacteriologic world. Principles of modern sanitary

engineering were already being steadily applied with notably beneficial results in matters of housing and community sanitation, but the demonstration concerning the micro-organic world was soon put to practical utilization in water and sewage filtration by sanitary chemists and engineers. One great plague, typhus fever was placed under control during the earliest stages of modern sanitation. It might almost be said that like Hercules, the infant science of sanitary engineering while in its cradle throttled this monster, even before it was old enough to comprehend the significance of its efforts.

Without attempting to follow chronological sequence or to place any emphasis as to their relative weight as factors in our present day body of public health practice, several elements entering into the modern health movement deserve passing reference. All have played a definite part in our achievements in these directions. Some of them are exclusively concerned with health conservation; others have come into play as a result of economic or social advance and their great health significance has often been entirely overlooked even by life long students of sanitary science.

The Educational Factor

Foremost among these is the growth of modern education. It is sharply questioned today by some whether our modern system of universal literacy and diffusion of information really constitutes education. One brilliant student of human affairs in an article recently contributed to a leading American magazine frankly takes the ground that we have made no real advance over Hellenic civilization in true education. Be that as it may, I firmly believe that modern public health achievements would have been utterly impossible save by imparting a rudimentary understanding of modern sanitary science to the masses in schools and by our books, papers and magazines. Lacking an at least partially-informed public opinion in these matters, progress in modern health endeavor would have been far below its present mark. The remnants of ancient and medieval pseudo-science transmuted into the superstitions, folk lore, and "old wives' tales" of modern times still remain one of our greatest obstacles to the more universal acceptance and application of the life-saving principles of hygiene. If the influences of our modern school systems and the dissemination of knowledge generally by books and periodicals were not partially neutral-

izing the subtle mischief of these inheritances of barbarism and superstition, the passive resistance offered thereby to the progress of hygiene would be almost insuperable.

Insects and Disease

A prominent place among the factors of modern health development must be reserved for the far-reaching discoveries of the relationship of the insect world to disease. The knowledge of the relationship of the mosquito to malaria and yellow fever, and of the flea to bubonic plague, to cite outstanding examples only, has been of great significance to all of us, and not only has this knowledge resulted directly in great saving of human life, but indirectly it has meant much already and in the future cannot help but mean vastly more in greater freedom of intercourse and trade among nations, and in the opening up of vast areas of the world's surface to agricultural or other uses.

A matter usually ignored in consideration of the factors of health conservation is the matter of food supply. Without considering the problem of personal nutrition or proper balance of metabolism, the thought it is desired to bring out here is the hygienic importance of having enough food of sufficient variety produced and distributed at a cost which the masses can meet. Here is the true course of much of the happy results of modern life-saving for which we are altogether too prone to give credit exclusively to the laboratory and microscope, the surgeon's knife and the physician's pill. Among the many startling object lessons of the great war none has been more dramatic than the revelation of what a period of widespread inadequate nutrition means in the morbidity and mortality tables of a nation or community. In looking back we see plainly that it was the recurring famines, followed always by fearful pestilences, which largely account for the almost incredible mortality rates of the middle ages.

Food Factors in Health

Modern health work is under a tremendous debt of obligation to those discoveries in soil chemistry, and to both animal and plant breeding and to the invention of modern agricultural machinery, which together have resulted in the present standards of quantity and cost in the matter of food production.

Bountiful production of food at reasonable cost is not by any means the whole tale of the fundamental bear-

ings of the subject of food upon health. Transportation and preservation of food by various devices have played a large part in making possible the all-year-round supply of a dietary adequate for the maintenance of the metabolism of the masses on a basis never before remotely approached. Rapid transit, modern canning processes, cold storage have all contributed to this phase of advance in health conservation.

Improved Living Standards

Another factor which has entered largely into the evolution of better health standards has been what is commonly comprehended by the phrase "standards of living." This is an expression which does not lend itself well to exact definition. It implies matters of esthetics as well as matters of sanitation. Such details as increased facilities for recreation and exercise, better ventilated, heated and lighted houses, workshops and buildings devoted to commercial, educational and amusement purposes, have contributed much to the conservation of our health.

A factor in the gains of our era in health promotion and life prolongation that cannot be ignored is the economic or more often the combined economic and sociologic factor. A leading American public health authority¹ concludes a recent critical study of the causes of our present striking decline in tuberculosis deaths with the statement that the improved earning capacity and shorter hours of labor of the average American wage earner have contributed more to this decline than all the institutional and medical care and general educational aspects of the anti-tuberculosis movement combined.

Both the amount of compensation of the worker and his hours of toil are of deep significance in determining the general health of the community. It is also true that specific safeguards against the hazards of industry are a prominent part of any health conservation program. From industrial stress and strain, from extremes of temperature in industry, from dust, smoke and fumes, from undue general or local fatigue come much physical impairment, shortness of life, industrial inefficiency and community impairment. The rapid growth of the science of industrial hygiene has been the answer of industry to the significance of these discoveries.

Having considered a few of the most important underlying contribu-

tions to health advancement it is now appropriate to weigh the significance of those factors usually thought of when the terms "health work" or "preventive medicine" are used. Reference is meant to the direct bearings of research in pathology, bacteriology, physiological chemistry, entomology and their newer subdivisions, together with the contributions of clinical medicine and epidemiology proper to the subject of health conservation as weighed and evaluated by the methods of vital statistics. This is what is commonly meant when the term "public health" is used.

Step by step with these discoveries has grown up during the past fifty years a remarkable number of agencies designed to function exclusively for the preservation of human health. Many of these are regularly constituted departments of national, state, and local governments.

Side by side with these health departments have also gradually come into existence a host of non-governmental agencies whose objective is the promotion of health. These range all the way from the vast endowed organizations, as the International Health Board of the Rockefeller Foundation, for instance, with a budget and resources far in advance of practically all governmental health departments down to the smallest village's band of public-spirited women who have united to ensure the services of a home visiting nurse for the community. In the promotion of health the aggregate influence of these organizations has been tremendous.

Statistical Record

Now let us see very briefly what the record of fact shows in the gains of health conservation up to the present. To present an elaborate statistical analysis as a basis for this statement, interesting though it might be, would unreasonably prolong this paper, hence merely a few salient features of Massachusetts' experience will be cited, with the general qualification that they may be accepted as typical of all localities where the occidental type of civilization prevails.

In Massachusetts the average yearly death rate from all causes from 1885-88, inclusive, was 19.5 per 1000 population; for 1920, the rate was 13.9 per 1,000. This means over 20,000 more lives were prolonged in comparison with the rate of about thirty years ago.

The infant mortality rate of Massachusetts in 1885 was 156; for 1921 it was 76. This means that whereas in 1885 a new-born infant had only a

little better than five chances in six of living to celebrate a first birthday, now less than one child in ten dies under the first year, a most creditable gain but still a fatality hazard much higher than we know to be necessary.

The death rate for pulmonary tuberculosis in 1885 was 307 per 100,000; in 1920 it was 96 per 100,000. This means that if the tuberculosis death rate had remained today what it was in 1885 in place of approximately 3,300 dying this year from consumption the number would have been over 12,000.

In 1885 the typhoid death rate of this commonwealth was 39 per 100,000; in 1920 it was 2.5. This means that, whereas less than 100 Massachusetts people died from typhoid in 1920, had the same rate prevailed as in 1885, 1,560 would have died.

In 1885 the death rate for diphtheria in Massachusetts was 78 per 100,000 of population, in 1920, 15 per 100,000 population.

In 1885 the death rate of scarlet fever per 100,000 population was 30.2. In 1920 it was 5.5 per 100,000 population.

Or it is perhaps more graphic and comprehensible to reduce the matter to terms of average expectancy of life at birth.

In 1885 the average approximate expectancy of life for a new born baby (male) in Massachusetts was 42 years (female), approximately, 43.5. Both sexes average 42.75 years. In 1920 the average expectancy was 53.98 years (male); 55.33 years (female). Both sexes 55.1 years.

Upon reflection we can see that up to a period roughly coincident with the end of the first decade of the present century all the influences operating most prominently in connection with health conservation have certain features or characteristics which mark them off to a certain extent from the health conservation problems of the present and near future. In general it may be said that hitherto the greatest emphasis has been placed, and the greatest advances made in the field of infectious disease prevention and control. It is also quite obvious that except in the case of the infectious diseases such gains as have been made in promoting the health of the individual or the mass have often been due to the accidental or unexpected results of some improvement in industry or transportation or the result of increased community interest in recreation or sociological endeavor, rather than to a conscious deliberate attempt to im-

¹ Emerson, Haven: The Factor of the Declining Death Rate for Tuberculosis, *Am. J. Tuberc.*, 1922.

prove the health of the individual or community. It may also be said with a high degree of accuracy that the health advances of the recent past have generally represented those things that could be *done* for the average citizen rather than those things which he *had to do for himself*.

As we turn to consider the future problems of health conservation we will note that all three of these factors will cease to be as proportionately effective as heretofore and must be replaced by procedures along radically different lines if the full potential benefits of a sound national health program are ever to be realized.

Present and Future

I have traced roughly some of the sources from whence our present health conserving agencies have sprung and have drawn attention to the crude proof of their accomplishments as registered in increased average longevity and decreased fatality from specific morbid processes.

Broadly speaking, no such results have ever been remotely approximated before in the world's history—Egypt, Hellas, Rome, India or China knew nothing like it in the days of their greatest glory. This record of achievement is one thing which sets our era on a pinnacle apart from the remainder of recorded human existence. To be sure, deep concern over the human misery arising from bodily affliction has long been a great moral force in the world but it is only in our own times that humanity's struggling aspirations for the alleviation of suffering have been translated into scientific achievement.

An outstanding feature of present day health aims is the degree to which they recognize how far the lengthening of average expectancy of life up to the present time falls short of the full possibilities to be attained as an outcome of a comprehensive well-rounded national health program. Past accomplishments in health improvement have consisted largely in triumphs over environment and in control of infections. In building up the well-poised body and in cultivating the serene mind we can point to no such clear-cut victories. In these respects some authorities do not consider that we can equal the actual accomplishments in personal hygiene that were achieved by the citizens of ancient Greece.

It should never be forgotten, however, in making such comparisons that the *free* citizenry of ancient Greece never represented more than ten per

cent of the total population. No records have come down to us relative to the hygienic conditions or mortality rates of the slaves and serfs who represented ninety per cent of the populations of antiquity. When proper allowance is made for the status of the slave in classical times, I am reasonably certain that our *average* achievement in personal hygiene today far surpasses the average standards of antiquity.

Most of our gains in life prolongation hitherto have been in channels where either correction of faulty environmental conditions or an interruption of the chain of infection was indicated. It is a peculiarity of these two types of health activity that they can be carried out to a large degree by the mere passive acquiescence of the bulk of the community. It is obvious that even where efforts and results in these directions reach the maximum there will still remain untouched large segments of the health conservation field.

An Expanding Concept

These never and as yet untouched or only lightly touched phases of health development call increasingly for active participation by the individual citizen, and this question of the reaction between the offerings of science and their acceptance by the average American citizen in the field of health promotion presents one of the most fascinating problems of our present day schemes of human government and social relations.

Today we are no longer satisfied with a mere negative definition of health. Health must mean something more than mere absence of acute disease. It implies a standard of personal vitality and physique that insures a positive enjoyment of existence due to a properly balanced, well exercised, smoothly functioning bodily mechanism reacting agreeably upon the mental and emotional processes of the individual.

One of the outstanding difficult problems of preventive medicine is that of bringing home the extent to which avoidable sickness, inadequate or improper physical training in childhood and preventable accidents all considered together, slow down our national productiveness; absorb time, money and energy that could otherwise be devoted to the greater expansion of a national cultural life; result in increased delinquency and crime; and in general add to the sum total of preventable human misery. I will not go into exact statistics on this point. The publications of the Na-

tional Safety Council present a mass of startling information as to the burden of preventable accidents; the publications in recent years of the various social welfare organizations and of departments of correction, probation and charities of certain states and cities show how direct and extensive is the relationship between delinquency and non-social behaviour on one side and physical deficiency or subnormal health on the other. We have begun to accumulate a certain amount of data on the magnitude of the burden imposed on society from occasional illness, a large proportion of which could be entirely avoided through sound intelligently applied systems of community, industrial, school and personal hygiene.

The British health insurance tables show that "at least 14,476,000 weeks work are lost on an average every year through sickness. . . That is to say, in *England and Wales there is lost to the nation every year*, among the insured population only . . . the equivalent of the work of 278,000 persons (working constantly throughout the year) . . . it is not only the working equivalent of 278,000 persons that the nation loses every year, but also the labor and expense involved in their care during the 14,476,000 weeks of their incapacitation. To this loss of time and capacity among the fourteen million insured persons, we must, to obtain the (total) national loss, add a comparable (and undeterminable) though presumably not so large proportionate loss, in respect to the remaining twenty-three millions of persons, including children."

The next finding of the British health insurance scheme is the one which opens up a wide range of discussion as to the reasonableness of this enormous aggregate amount of recorded sickness. It is reported that when the causes of sickness which result in this staggering amount of national non-productiveness are sought that the absences from labor due to serious diseases such as organic heart disease or tuberculosis, for example, are relatively few but it is what are generally known as the minor maladies such as functional impairment of digestion or of kidneys, neuritis, neuralgia, sick headache, decayed teeth, tonsillitis, bronchitis and common colds, "rheumatism," etc., that are the principle causes for which these persons seek medical advice and absent themselves from work. In the aggregate these "minor ailments" produce a truly formidable amount of suffering, sickness, idleness and loss of income. An exceptionally large proportion of

just such aliments is entirely avoidable by attention to personal hygiene. Hence we see that the preventive medicine of the future must seriously concern itself with this problem as well as with its present recognized duties in sanitation and communicable disease control.

This swing of the pendulum away from consideration of mass groups of the population and towards emphasis upon the health problems of the individual is very noticeable in all lines of health work and is the best evidence now available of the directions in which we may confidently prophesy that future developments of health work will lead us. The very nomenclature coming into common use to designate the major divisions of health activity with the word "hygiene, infant hygiene, dental hygiene, mental hygiene, for example, contrasts sharply with the older divisions with which we have long been familiar—sanitary engineering, epidemiology, vital statistics,—words indicating mass or group conceptions as sharply as the newer terms indicate the individual.

It will perhaps suffice to indicate some of the hygienic measures which can already be seen coming into prominence in health conservation and which must inevitably come into much greater prominence in the future.

It is obvious that everything pertaining to the health of the mother must receive attention if real health advance for the nation is to be achieved. The health of the mother is so closely interwoven with the health of the infant that almost instinctively we associate the terms maternal and infant hygiene. And as Sir George Newman pithily puts it, "Here is the source of the nation. From a physical point of view, what the mothers and children are the nation is and will be."

Passing beyond the period of infancy we find our hygienic nomenclature chiefly focused on the general term, child hygiene, and better to emphasize the methods by which child hygiene is to be fostered, such specialized terms as dental hygiene, school hygiene, physical hygiene or education, hygiene of nutrition and others not yet so familiar.

Passing on to adolescence and adult life still other terms are coming into wider use and into more intelligent comprehension by us as a nation. I refer to such terms as mental hygiene, industrial hygiene, personal hygiene and all they imply. This list is not by

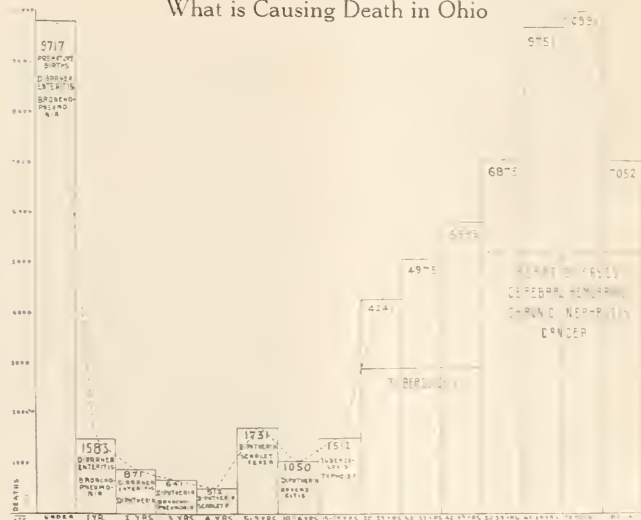
any means exhaustive, but by this very terminology of the newer health program we apprehend clearly that back of them all must lie, first, education of the individual in hygienic principles and, second, an intelligent voluntary response on the part of the individual to this education if our health conservation program for the future is ever to be made effective. In fact we may reasonably say that the health program of the future will be effective directly in proportion to the application of four fundamental factors each of which can only be successful by the active participation of the individual citizen. These are, first, personal assimilation of the simpler principles of personal and community hygiene; second, personal volition or a will to put this knowledge into effect; third, an increased degree of self-control by the average individual with a corresponding increased ability to regulate by the rule of reason and moderation the ancient instincts of man whether they relate to sex, food, drink, pugnacity, work or sloth, or such mental instincts as fear, hate and envy, and fourth, an increasing instinct to regulate individual hygiene by the dictates of altruistic promptings towards our fellow men, which last may sound sentimental but in reality is coldly scientific as well.

The goal is now clear. It is to establish the span of average existence upon the plane of the maximum aver-

age physiologic efficiency of the human body. Strictly speaking, up to the present time it has been only the very exceptional person who has lived a normal human life to its conclusion, for nearly all of us die prematurely. But now we know enough to change this; we know now that there is no such thing as an "inexorable law of mortality," we know that "public health is purchasable and within reasonable limitations each community can fix its own death rate." We know that the classic statement of Babbage: "There are few things less subject to fluctuation than the average duration of life of a multitude of individuals" is absolutely erroneous.

Obviously there is sufficient scientific knowledge extant, if intelligently and universally applied, to prolong the span of average human life by many years, and to make all these years much more abounding with the joy of living that accompanies top-notch physical condition than is the case with the average person today. A committee of the American Public Health Association has recently reported that whereas average American life expectancy is now probably in the neighborhood of fifty years there is no insurmountable obstacle in sight to increasing that average expectancy by at least twenty years in the next few generations. Surely this is a goal worthy of our best endeavors.

What is Causing Death in Ohio



Analysis of the 67,000 deaths of 1921 in Ohio has been made and graphically portrayed to show the greatest causes of death by age groups. This is Chart No. 3 of a series of charts issued by the Ohio Public Health Association for use on bulletin boards to give out vital facts pertaining to health conditions in the state. They are issued twice a month.

3. Annual Report of the Year 1921, by Sir George Newman, chief medical officer, British Ministry of Health, p. 27.

Infant Welfare in Saxony*

AMONG all dangers to which the human infant is exposed, none is so great as faulty nutrition. Sixty per cent of all infant mortality in Germany is caused by errors in nutrition. These are the observations of K. A. Lingner's excellent monograph on the organization of a National Center for the protection of infants and mothers in Hess in 1908, a monograph, which in connection with the Lingner Foundation, played an important part in the passing of the Saxon Welfare Law of May 30, 1918. But infants' welfare work was carried on in Saxony before 1918, not only in the larger but also in medium-sized cities and here and there in the country. There were scattered consultation stations, milk kitchens, and day nurseries created after the passing of the law, which caused a tremendous increase in female work. But what was lacking was the systematic handling of the problem by trained workers, and proper financial support. These necessary preliminaries were created by the law of 1918. Under the influence of the ideas and plans of Lingner, that were contained in the orders of February 4, 1919, the first emphasis of the newly founded welfare district stations was put upon the expansion of the public infants' welfare work, the fundamental idea of which was the furthering and securing of the natural feeding of the child. Mothers' information stations were systematically created, everywhere in great numbers. In 1920 there were 456; that is, ten times the number before the passing of the law. There are districts that as a matter of principle take charge of every mother and infant, and others that are content with those that come voluntarily. It is, of course, a question of the available trained forces as to whether it is possible to follow up every birth reported.

With the women's clinics it has not yet been possible to obtain complete reports. According to the report of 1920, which in the meantime may have been surpassed, in 62 districts all births were recorded through the local register. In 7 districts the district nurses were still forced to examine the list themselves. New-comers among infants and small children were in 4 districts reported by the office for the registry of inhabitants. In 16 districts the midwives were obliged to report all births to the welfare station at once.

After the report a visit by the district nurse is made to ascertain the physical and financial, as well as other conditions of mother and child. In case of need the district nurse immediately takes charge and makes use of the proper sources of help. In other cases she will go no further than to draw the mother's attention to the importance of natural feeding and of visiting the mothers' advice station. The issuance of nursing certificates for the obtaining of weekly assistance through the mothers' stations is a good means of getting the women accustomed regularly to visit the advice stations. Up to date the mothers' stations have made the most of this possibility. In 1920 the situation was such that in 55 districts the certificates were issued by the midwives, in 33 by the district nurses, in 10 by the doctor, in 3 by the sick fund office and in 1 by a woman's club. In 2 districts the certificates of the midwives had validity only when countersigned by the mothers' station. The midwives do not cooperate with all advice stations. In 39 districts cooperation is reported, and stress is laid upon the almost universally cordial relations with the midwives. As to the extent of the medical cooperation, the reports of the nursing districts for 1920 give no clear idea. In 68 districts the ad-

vice stations are, as they should be everywhere, under medical supervision. In all other districts medical aid is not always available, the cooperation being limited to occasional visits of inspection. The mothers' advice stations have been placed in the houses of ministers, cantors, teachers and doctors, in schools, hotels, and often in rented rooms in the welfare centers themselves, the furnishings being supplied by the municipalities, women's clubs and individuals. In 1920 the mothers' advice stations, covered on an average only infants to the end of the first year. Children up to two years were taken into the nursery in 31 stations, children from two to six years, in 27 stations and up to seven years in one station.¹

Advice to pregnant women is practiced in 36 stations, and very often a strong interest in improving home-nursing is observed. Home-nursing societies provide nurses for the protection of the mother, who in this manner is for the time being relieved of the worries of the household and family, and placed in a position to take the needed rest and care. The interest in this institution has grown mainly through the fact that the expense is borne by the sick insurance and weekly assistance fund.

1. These figures will have undergone changes to the advantage of small children in 1921. It embraced of all infants less than 50% in 4 stations, 30-40% in 11, 40-50% in 80, 50-60% in 19, 60-70% in 23, 70-80% in 14, 80-90% in 7, 90-100% in 3, and 100% in 9.

Japanese Scientists Visit America



A party of distinguished scientists now visiting the United States from Japan is visiting the chief laboratories and medical centers of the country under the auspices of the Rockefeller Foundation.

*Translated from *Einrichtungen auf dem Gebiete der Volksgesundheits- und Volkswohlfahrtspflege im Freistaat Sachsen, 1922*, Dresden.

Work Against Venereal Disease in Rochester

By GEORGE W. GOLER, M.D., AND JOSEPH ROBY, M.D., THE HEALTH BUREAU, ROCHESTER, N. Y.

IN OCTOBER, 1914, we opened a consultation and clinic for infectious diseases in the Health Bureau; published the advertisement (Fig. 1), and distributed the signs (Fig. 2), phrasing the advertisement as it is published to cover all infectious diseases, so that the patients attending the clinic might not be stigmatized as venereals.

The health officer, deputy health officer, and Dr. Franklin Plumley, a volunteer worker, conducted the consultation and clinic for the first three years, after which period the consultation became a clearing house for the control and clearing of patients to the Baden Street Dispensary and the three hospital dispensaries. The State Department of Health gave the Wassermann tests, the deputy health officer the dark field examination, and the Health Bureau furnished arsphenamin and mercury in suspension for intramuscular injection. Inunctions were not used.

Situation and Furnishings

The consultation and clinic were in the Health Bureau, situated in the central part of the city. The general waiting room was the waiting room of the Health Office. The consultation and clinic were in a room 10x12. Table, desk, chairs, bowl, hot and cold water, small sterilizer, syringes for intramuscular injection were provided, as were cotton, alcohol, etc., and an intelligent nurse was in attendance, supplementing a talk on the disease. A booklet on syphilis and gonorrhea was given to each patient.

From small beginnings in two years the consultation grew until the waiting room, a space 12x30 was so crowded there was not room for patients to be seated. The hospital superintendents and representatives from the different hospital managements were then asked to visit us so

that they might see the need of venereal clinics in the hospitals and for serial Wassermann tests on all classes of entering patients at all times.

The Problem Involved

It is comparatively easy to get patients to come to a V.D. clinic. The problem is to hold them after they begin to come—to use force for the purpose without the appearance of force. We got the patients and we held them. The police power of the Public Health Law under Article xvi, Sec. 326-A, "Control of Careless and Dangerous Patients," might have been of little use but for the cooperation and enthusiastic support of the work given by City Court Judge (now county court judge) Gillette, and, later, down to and including to the present time, that of City Court Judge Kohlmetz, and through the whole period of time by Chief of Police Quigley. These judges and the police chief have thoroughly and enthusiastically supported us in the operation of this law. Recalcitrant patients are sent for by the police bureau and, when found, brought to bar by the police. The judges have uniformly committed such patients to us under the law.

What of the Patient

A summary of the work extending over a period of years shows that now and then a patient told a friend to come to the clinic and when the hospitals opened their clinics they referred their own patients to their own clinics; but it was by advertising in the newspaper, and by advertising alone, that a knowledge of this work was extended and patients came to the clinics.

When once a patient with syphilis was found, (and the operation of the clinic was chiefly against syphilis) what was done with him? A dark field examination or a Wasserman having shown the presence of syphilis, the patient was told of the dangers of the disease and induced easily to attend the clinic or, failing in this, was compelled to do so. All other members of the family and any known contacts were induced or compelled to submit to Wassermann tests, and those found positive had either to become patients of a physician who would report, or had to submit to the rules of the clinic. At the clinic courses of mer-

cury in suspension were given. Patients were sent to the Municipal Hospital for courses of arsphenamin. Wassermanns were taken at appropriate intervals. The patient was kept under control until he became both blood and spinal Wassermann negative, the final spinal Wassermann being one of the preliminaries for discharge.

Physicians were requested to report their private cases. Cards similar to the following were sent to them at stated intervals:

Rochester, N. Y.
This is to certify that, (name of patient) is still under my care.
(Signed) M.D.

Many of the physicians cooperated; two of the specialists objected until they found that the work of the bureau operated to keep their patients under control, for the public as well as the private patient usually received medical treatment just as long—or maybe a little longer—than active symptoms persisted. It was the consensus of opinion by five well known syphilographers, that not more than 5 per cent of even well-to-do private patients remain under treatment for a sufficient time to effect what we call a cure.

Time passed, the work grew until in 1919 it became impossible with three physicians and one nurse to care for the patients in the clinic, and at the municipal hospital to provide for the arsphenamin given these patients. Clinical work was, therefore, divided between the Baden Street Dispensary, the General, Homeopathic, and Highland hospital dispensary. This man-

MEDICAL
RESIDENTS OF ROCHESTER, avoid
quack doctors, quack dentists and
patent medicines. Your time and
money will be wasted, you will not
be cured, and your health may be
ruined by the use of them. Free
consultation advice concerning your
health at the Health Bureau, Chest-
nut and James Streets, Mondays
and Thursdays, 3 to 4, and Mon-
days, 7 to 8 p. m.

VENEREAL DISEASES
Avoid Quacks and Patent Medicines.
Your time and money will be wasted.
You will not be cured.
Your health may be ruined.
FREE
Confidential advice can be obtained
from
THE BUREAU OF HEALTH
Chestnut and James Sts.
On Mondays, 3 to 4 and 7 to 8 p. m.
Thursdays 3 to 4 p. m.

Fig. 1.—An advertisement, worded to cover all infectious diseases, was inserted in Rochester papers to announce the opening of the venereal clinic.

Fig. 2.—Consultation made easy, the stigma removed, the clinic became the clearing house for venereal patients at legitimate institutions.

ner of doing the work has continued to the present day.

No work in recent years has more clearly proven the unpopularity and difficulty of reform in medicine, even after the value of our methods had been clearly shown. At first the hospitals could only with difficulty be induced to do routine Wassermanns, even among their ward and maternity patients. They rather preferred to remain in the dark concerning unknown cases of syphilis in their wards, even occasionally to open an abdomen for a suspected gastric ulcer, when a Wassermann test, together with the clinical signs would have shown the patient suffering from the gastric crises of tabes, than to take routine Wassermanns on their patients. But the hospitals finally did open free day and night clinics, and later followed them with pay clinics, one of them self-supporting.

The Health Bureau, having turned the clinical work over to the Baden Street Dispensary and the hospitals then became a consultation post where patients are received for advice, diagnosis and reference to a clinic. It also discharges the important function of following up the patient.

Since the clinic opened eight years ago there have been 1,726 patients; 41 have died; 436 have been referred to physicians or have removed to other cities, most of them under control by being referred to clinics in other cities; and 514 have disappeared, leaving 735 under active treatment or observation. More than a thousand patients are now reporting to the clinic, equally divided among dispensary and private patients of other physicians. The object of the clinic is not so much the cure of syphilis as the treatment of syphilis. Most patients report for treatment late. We hope to restore them to work and earning power, to protect the patient, his possible descendants, the family and state.

Methods Are Individual

In the clinics each case is a law unto itself. In a general way the following methods have been followed: Every sore is looked upon as suspicious. It is examined with the dark field, because we have found spirochaeta in sores that in the older days would have been passed by as abrasions or herpes or chancre. Chancroids are very rare. A Wassermann test is done on every patient. If we fail to find spirochaeta, the patient is told to come again and another search is made.

In active syphilis (primary or sec-

SYPHILIS

Is NOT, correctly speaking, a Venereal Disease. It may be contracted or communicated in other ways.

BEGINS as crack, fissure, abrasion, or ulcer at point of infection, often slow to heal.

Sure Diagnosis at this time by Microscope ONLY.

FOLLOWED in six weeks by rash, sore throat, fever, enlarged glands and malaise. It may finally attack every organ of the body, causing blindness, locomotor ataxia, paresis, etc.

DIAGNOSIS confirmed by Blood Examination.

TREATMENT by not less than Six Doses of "606" not more than six or seven days apart MAY SAVE years of terrible disease, perhaps YOUR LIFE.

If suffering from this disease, it is YOUR PATRIOTIC DUTY to take treatment AT ONCE. DELAY in TREATMENT makes it much more difficult to cure.

HEALTH BUREAU

Fig. 3.—In Rochester, he who runs may read, and thus secure the authentic information that is his best safeguard against disease and against charlatanism.

ondary stage) the treatment is more active than in the tertiary stage. The routine for the active cases, so far as there is any routine, is to give two injections a week with arsphenamin intravenously in doses of 0.1 gram to 30 pounds body weight and an intramuscular injection of mercury salicylate from 1 to 2 grains in oil. From six to eight or ten doses of arsphenamin and mercury are given in this way, a Wassermann test being made at each dose. Then the patient is given a rest of a month and another course of arsphenamin and mercury is given, the subsequent treatment depending upon the Wassermann test. Even if a negative Wassermann has been obtained, the patient is given about twenty-four to thirty doses of arsphenamin, extending over a year. After a negative Wassermann has been obtained two or three courses of mercury inunctions are administered, and, finally, a course of mercury by mouth.

The tertiary stage or congenital conditions are handled in the same

way, except that the treatments with arsphenamin are given once a week.

Our reasons for giving neo-arsphenamin are the sharp reactions that occasionally develop after the use of arsphenamin and the occasional difficulty of getting into a vein. We find that we can use the neo on the small veins of the wrist or back of the hand where we cannot use the arsphenamin. In this connection we have found very useful a suggestion of Dr. Wentworth of Rochester, in the use of the femoral vein. It is an easy vein to enter and is so large that thrombosis apparently never ensues. Our patients have been much less liable to unfavorable reaction if the solution is run slowly and if the patient sits up in a chair.

Finally, patients are never discharged. They must have a negative Wassermann of the spinal fluid before active treatment is discontinued. And after that they report at first once in six months, then once a year for blood Wassermanns.

The U. S. Public Health Service; The State Department of Health; The Health Bureau;
The Baden Street Dispensary; The Rochester General Hospital; The
Homeopathic Hospital; Highland Hospital.

INFECTIOUS DISEASE CLINIC

The public and physicians know that neglected infectious diseases exist. Most, but not all of these, are venereal diseases. Some are hereditary, some are acquired, many of them innocently. These diseases are commoner than physicians or public supposed. They were neglected until prior to the great war. They were not much talked about before the war. The Army found that these diseases prevented men from being "Fit to Fight."

The Public NOW KNOWS that these diseases make men unfit to Earn a Living; cause Blindness in Children, Peritonitis in Women; Organic and nervous diseases and insanity.

We are going to PREVENT these diseases. We are also going to TREAT THEM. For those already infected it will require LONG, CONTINUOUS TREATMENT to be made WELL.

BEWARE OF QUACKS and those who do not use the microscope, blood tests and other scientific means for diagnosis and treatment.

Both FREE and PAY CLINICS have been OPENED FOR THE DIAGNOSIS and TREATMENT of these DISEASES.

FREE—At THE HEALTH BUREAU, Mondays and Thursdays, 3 to 4 p. m. Mondays, 7 to 8 p. m.

FREE and PAY—At BADEN STREET DISPENSARY, Tuesdays and Fridays, 8:30 to 10 a. m. Tuesdays, 7:30 to 9 p. m.

FREE and PAY—At ROCHESTER GENERAL HOSPITAL, Tuesdays, 4 and 7 p. m. Thursdays, 1 p. m.

Fig. 4.—As the work grew and proved its efficacy other agencies were induced to provide the necessary facilities to handle the referred cases, the Health Bureau, serving as a consultation clinic to diagnose conditions and assign patients for treatments by other agencies.

National Organization and Child Health Work*

By DONALD B. ARMSTRONG, M.D., EXECUTIVE OFFICER, NATIONAL HEALTH COUNCIL, NEW YORK CITY.

IT IS recognized by all that the national movements become effective through the local contacts. The local organizations are the feet upon which the national movements stand. The local field is the point of precipitation for the program, where a more or less ethereal aspiration is translated into a concrete body of service.

There are, of course, certain general ways in which all national health movements strive to serve community efforts. Chief among these are the following:

(1) The establishment of scientific standards, such as the work being done by the National Child Health Council Committees on food and nutrition, standard weights and heights for school children, etc.

(2) The development of general basic information, such as the statistical municipal mortality summaries of the American Child Hygiene Association.

(3) The development, from special research, of ammunition for use in local programs, such as the data being acquired from such demonstrations as the Framingham tuberculosis work under the auspices of the National Tuberculosis Association, and the Mansfield Child Health Demonstration under the auspices of the National Child Health Council.

(4) The training and stimulation of personnel, as carried out by the National Tuberculosis Association semi-annual institutes.

(5) The development of such special devices, as the health clown or the health fairy, as initiated by the Child Health Organization of America.

It seems probable that one of the most useful services which the National organizations have performed for local agencies in the last few years is the elimination of confusion and duplication in organization on a national scale. The child health field in particular is marked by real progress in recent years. We have now the National Child Health Council, an organization that endeavors to coordinate the educational, scientific and field interests of the chief movements interested in the promotion of health among children. Its membership includes the following organizations:

The American Child Hygiene Association, the American Red Cross, the Child Health Organization of America, the National Organization for Public Health Nursing, the National Tuberculosis Association, and the National Child Labor Committee.

More recently, a successful movement has been carried out still further to coordinate these organizations. This involves the actual amalgamation of the American Child Hygiene Association and the Child Health Organization of America—the two organizations principally interested in child health. Consideration is also being given to the relation of such a merged group to the vitally important child health program of the National Tuberculosis Association through the Modern Health Crusade, and it is hoped that local organizations may before long reap the benefit of a closer integration of effort in all of these child health fields.

It may seem from this point of view that the National Child Health Council is rapidly working itself out of a job, so to speak. However, even though it will have accomplished noteworthy and, indeed, unique results, it will still have definite work to do, or to "bequeath" to other agencies, through its important advisory committees, in connection with the administration of the Mansfield Demonstration, etc. Further, the National Child Health Council bears an important operating relationship to the Child Health Committee of the Commonwealth Fund—a committee recently appointed to administer the child health demonstrations to be carried out with the financial support of that Fund in the Mississippi Valley, in the west and south. There is approximately two hundred and fifty thousand dollars a year available for an effectively coordinated child health program in typical American communities still to be selected. From this experience, supplementing as it will the Mansfield and other studies, there should be derived a tremendous amount of supporting and guiding data for the effective pursuit of disease prevention and health promotion among children in all parts of the land.

Nearly everyone is familiar with the specific services which the existing national child health agencies are

offering to state and local groups. It may, however, be worth while to review a few of the more important of these contributions.

(1) From the former American Child Hygiene Association we have the publication *Mother and Child*, which fills an important niche in the field of health. Then, too, there are the annual statistical reports of this organization and the lecture and consulting services offered by the staff.

(2) Through the American Red Cross, particularly through its Junior Division, assistance can be secured for the establishment of the Junior Red Cross in the schools, aiming as it does at the promotion of health habits, of civic responsibility, and at foundation building in community welfare.

(3) From the former Child Health Organization of America, interested as that organization is, particularly in the school child, have come for use in all of our communities not only literature, but unique educational devices, including the health clown, the health fairy, the health theatre, etc. All who have taken children to the circus in the last few years, and have heard the consecutive exclamations from rows of children of "Here comes Cho Cho" as the circus clown makes his first round of the sawdust ring, have realized the effectiveness of this method of health education.

(4) From the National Organization for Public Health Nursing have come standards of nursing, methods of training and securing personnel, methods for teaching all phases of child health nursing work, including prenatal, infant, pre-school, school and early industrial interests.

(5) From the National Tuberculosis Association, a most vital contribution, namely, the financial resources for the development of the field service program as derived from the Christmas seal sale, for a major portion of the practical child health work, as established in our American communities. In addition, there is the extensive organization reaching millions of children in our schools known as the Health Crusade, as well as the standards for diagnosis and treatment of tuberculosis among children as developed by the Framingham Demonstration committees.

(6) Finally, from the National Child Labor Committee, we have the publication known as the *American*

*Address delivered before Nursing and Child Health Sections of the Maine Public Health Association, Lewiston, Me., August, 1922.

Child, dealing primarily with health and welfare interests of the child entering industry.

While this exhausts the list of the organizations holding a membership in the National Child Health Council, there are other organizations—associates of the National Child Health Council in the membership of the National Health Council—that deal with equal directness and significance with many important phases of child health work. Among these is the American Social Hygiene Association. This organization, through its work with health authorities in the prevention of venereal disease, brings to bear a tremendous influence towards the prevention of stillbirths, the elimination of preventable blindness, etc. Perhaps more important in its program is the general work for sex instruction and the promotion of home hygiene.

Of equal importance from certain angles is the National Committee for Mental Hygiene. The education and direction and adjustment of the abnormal child in school, at work, at play and everywhere, has an important relation not only to mental health, but to physical health and to

community hygiene as well. The resources of this organization, as well as those of all the others whose contributions to child health have been briefly and incompletely touched upon, are available to meet the needs of local communities everywhere.

It is recognized by all that in the promotion of health, education is the important thing. It is also becoming increasingly evident that the child is the only one that can be hopefully approached with the object of altering habits. The plastic period of childhood, in contrast to the static condition of the adult, possesses unabsorbed instinct energy. He alone is willing to practice health for health's sake.

Then it is also realized that the greatest strides in the past, in the work for preventive medicine, have been made in the fields of tuberculosis and child health. We seem justified in assuming that in the child health field lies one of our greatest hopes for the future. Certainly hygienic conditions among children constitute one of the keenest indices of community welfare. The work for child conservation aims at the protection of the nation's greatest asset.

these two rates continue unchanged they will coincide in 1926.

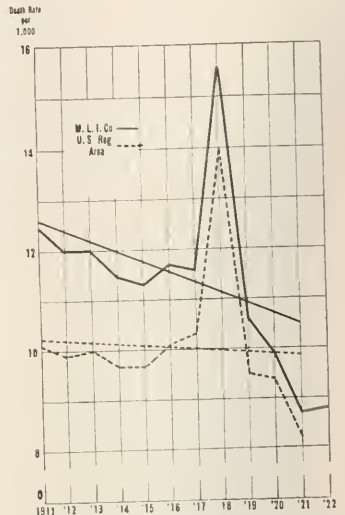


Fig. 2.—Comparison between the decline in the death rate from all causes, Metropolitan industrial policy holders and general population of the U. S. Registration Area.

The downward tendency of the mortality from all causes of death among Metropolitan Industrial policy-holders is six times that in the mortal-

DEATH RATE PER 100,000 TUBERCULOSIS, ALL FORMS.

Year	M. L. I. Co.	U. S. Reg. Area—Ages 1 to 74
1911	224.6	157.6
1921	117.4	97.7
1922	113.4	....
Per cent decline:		
1921-1911	47.7	38.0
1922-1911	49.5	....

Deaths from all causes have likewise shown a remarkable decline.

DEATH RATE PER 1,000, ALL CAUSES.

M. L. I. Co.	U. S. Reg. Area—Ages 1 to 74	Year 1 to 74
1911	12.5	10.1
1921	8.7	8.2
1922	8.8	....
Per cent decline:		
1921-1911	30.4	18.8
1922-1911	30.0	....

ity of the population of the U. S. registration area. (Figure 2.)

The downward tendency of mortality of insured children has been twice that among the children in the general population of the registration area.

Life Insurance Service

IN "What You Did in 1922," a statement of the public service of the managers of the Metropolitan Life Insurance Company, it is stated that the visiting nurse service of the company cared for 426,926 persons in 1922, which is a gain of 98,759 over the 328,167 cases reported in 1921. The distribution of health literature amounted to 33,322,161 pieces, a gain of 7,966,859 over the high mark of 1921.

The health record of 1922 was extraordinarily good in the reduction of deaths from typhoid fever (now one-fourth of the 1911 rate); from tuberculosis (now one-half of the 1911 rate); and from the communicable diseases of children (now one-half of the 1911 rate). The protective health work of the managers has helped in securing this reduction which means that approximately 52,000 persons were kept from dying in 1922 who would have died had the rates of 1911 prevailed.

Another publication of the same Company, "Lengthening Life Through Insurance Health Work," shows that there has been a saving of 15,000 lives in 1922 by the decline of the tuberculosis death rate since 1911. (Figure 1.) The downward tendency

of the death rate for all forms of tuberculosis among Metropolitan Industrial policy-holders is twice as great as in the population of the U. S. registration area. Should the decline of

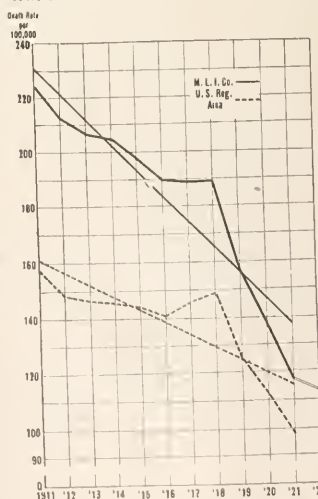


Fig. 1.—Comparison of the decline in death rates, all forms of tuberculosis, of industrial policy holders of the Metropolitan Life Insurance Company and population of the U. S. Registration Area as a whole.

Inspection of Soft Drink Establishments

By IRA V. HISCOCK, ASSISTANT PROFESSOR OF PUBLIC HEALTH, YALE SCHOOL OF MEDICINE, AND ANNA I. VAN SAUN, DIRECTOR, BUREAU OF LABORATORIES, DEPARTMENT OF HEALTH, NEW HAVEN, CONN.

THE most casual observer cannot fail to recognize the phenomenal increase in the consumption of soft drinks throughout this country during the past five years. Recent estimates indicate¹ that the equivalent of over four billion pints of bottled sodas are now consumed annually in addition to the enormous amount of soft drinks at approximately one hundred thousand soda fountains in the United States. This rapid development of a business which reaches a large percentage of the people of both urban and rural districts has created a public health problem of considerable importance. For many of these beverages are mixed and bottled by untrained individuals in surroundings which are insanitary, while others are served in dirty containers to the unsuspecting public. Skinner has well said that the provisions of the Federal Food and Drugs Act should be applied to such products, and that activities under the federal act should be supplemented by adequate state and municipal control.

In one of our largest cities where considerable attention is given to this problem, there were, before the passage of the Volstead Law, seventy soft drink manufacturing establishments. Today there are 130.² Inspections and laboratory examinations here as in other cities, indicate that many of the soft drink preparations are produced under conditions which render them unsafe for human consumption. As many as forty of the establishments are reported to be under orders to make necessary changes to bring them up to standard, or to discontinue business.

Small communities are concerned fully as much as large ones. A survey of bottling works and soda fountains in a small city made in 1920 by one of the authors revealed conditions surprising even to a health inspector. While two of the large plants were in excellent condition, careless washing of bottles by unskilled workers in dark, poorly constructed establishments (shed-like structures in rear yards in two instances) frequently represented the first stage of the

process in other cases. The syrups, although received in apparently satisfactory condition, were often mixed in rooms unscreened and otherwise unprotected from contamination and later passed through cheese cloth of questionable cleanliness on the way to the bottles. Although the filled bottles were eventually passed over an electric light for the detection of visible dirt, this procedure was not sufficiently supervised, as demonstrated by the fact that many samples containing flies and other visible sediment (not the precipitates sometimes found in bottle sodas) were picked up in the open market and brought to the laboratory by citizens and inspectors. Such complaints were rarely heard concerning the products of the better regulated establishments. Our experience in other cities leads to the conclusion that the above experience may be duplicated elsewhere.

The soda fountains of the same city presented equally undesirable conditions. Of thirty-seven fountains, eleven were filthy, nineteen others had no hot water and only seven were satisfactory. In some instances there was no indication that soap was used in washing and the wash water was usually very dirty and rarely changed. In most of the eleven cases above mentioned, the hands of the men as well as the utensils, were extremely dirty. Only two of the 37 fountains used individual drinking cups entirely, while a few others used them upon request. Several fountains operated milk pumps which, according to the testimony of the workers, were not cleaned every day, and the intervals were doubtless much longer in many cases. Definite improvement resulted in the bottling works and soda fountains with the institution of frequent inspections and regular laboratory analyses.

Active Control Necessary

The recent experience of inspectors of the State Board of Health of Alabama is also suggestive of the need for active control of this problem.³ Inspection was made of the soda fountains of a representative city of the state and cultures were taken from various drinking glasses ready to be used. Forty per cent of the glasses

examined were actually infected with germs commonly found in the nose and throat, while an additional 20 per cent were dirty or infected with germs of putrefying matter. Only 40 per cent of the glasses were considered safe to use. Less than 7 per cent were sterile and these glasses were found in a place which employed a boy during rush hours for washing glasses in hot water and soap.

The following extract from a recent health bulletin of another state is also interesting in this connection. "While there is some excuse for the small, unincorporated town which has no health officer, it is surprising to find in two of the largest communities conditions such as were observed at presumably first-class soda fountains. In one place, the cherry not consumed by the purchaser was thriftily transferred to the next drink ordered. In another place, this was done with the ice, which was put into the next glass without the formality of being washed."

Inasmuch as there are so many popular drinking fountains which do not properly sterilize or even clean the glasses and spoons, and inasmuch as this is an easy and dangerous manner of spreading disease, it seems that measures should be taken to improve the situation. While many of the sterilizers installed in soda fountains in various parts of the country in 1917 and 1918 may have demonstrated their usefulness, others merely gave a false idea of protection to the public for they were either not used at all except to adorn the back of the fountain or else were operated at too low a temperature for sterilization and hence were valueless.

One naturally expects the large cities to be leaders in health supervision of this kind. A few of the city and state health bulletins—notably New York, Chicago, New Haven and the states of Alabama, California and Connecticut among others—have already directed attention to the importance of the problem. It is interesting to note the findings of the Committee on Municipal Health Department Practice of the American Public Health Association.⁴ Of the eighty-three cities of one hundred thousand population and over surveyed, a little over half (forty-nine) had, in 1920, special regulations for

1. (a) Skinner, W. W.: "Bottled Beverages and Soda Fountain Syrups." A. J. P. H., June, 1922. (b) "Dirty Glasses as Germ Carriers," *The Nation's Health*, January, 1923.
2. Bulletin of the Chicago School of Sanitary Instruction, January 13, 1923.

3. "Dirty Glasses Are Germ Carriers," by C. A. Abele, *The Soda Fountain*, July, 1922.

the sterilization of utensils at soda fountains. Some of these regulations were of state rather than city origin, and others were entirely inadequate. The report states that "apparently there is much to be desired in many of our cities in enforcement of regulations requiring proper cleansing and sterilization of eating utensils." Lack of supervision of bottling works was even more striking. In many cities new regulations are needed, whereas in others, enforcement of existing codes would bring the desired results.

As one basis for formulating practical measures of supervision it may be worth while to recall briefly the experience of a few cities which have taken the lead in this work. In 1916, the department of health of New York City studied methods of dishwashing and Mannheimer and Ybanez⁴ concluded that boiling water is necessary for sterilization. Dr. Jane L. Berry of the New York laboratories found that a saturated solution of chlorid of lime gives practically instantaneous results in sterilization of glasses, and her work has been confirmed in the New Haven Laboratory.⁵ It is recognized, however, that a hypochlorite solution, to be effective, should be made up freshly each day, with considerable care. Consequently, as a practical measure, we do not feel inclined to recommend this procedure for routine disinfection purposes.

In order to prepare rules for the guidance of those dispensing drinks without inflicting hardships on the owners of establishments, the New Haven health department undertook research investigations on this subject in 1919. These studies showed the need of enforcement of the existing ordinance and gave interesting and instructive information regarding the solubility of soap powders and cleaning solutions, as well as their possible bactericidal qualities. The laboratory was enabled to suggest simple methods of washing utensils⁶ which could be used by any firm maintaining a soda fountain, ice cream parlor, or lunchroom. Personnel was found to be a determining factor in the proper upkeep of these establishments. Conditions while by no means ideal are much better today, partly as a result of the investigation and partly because of the increased demand

HEALTH DEPARTMENT OF THE CITY OF RICHMOND			
BOTTLING PLANT SCORE CARD			
		Date of Inspection.....192.....	
EQUIPMENT	SCORE Per- fect	Al- lowed	SCORE Per- fect
LOCATION	15		
Surroundings: Clean.....	3		
Above ground.....	2		
No open privy nearer than 100 feet.....	3		
No horses kept on premises.....	2		
Proper toilets located outside building, 5 inside, 3.....	5		
CONSTRUCTION	20		
Floor: Cement, 5; tile or brick, 3; wood, 1.....	5		
Floor free from defects.....	3		
Walls and Ceiling: Tile, cement, enameled metal and enameled wood.....	5		
Plaster, 2; rough wood, 0.....	2		
Walls free from defects.....	2		
Fly Screens.....	5		
SANITATION	15		
Light: Window area 20% of floor space.....	4		
Ventilation: Working system.....	4		
Windows.....	4		
Drainage: Ample, 1; trap- ped, 1.....	2		
BOTTLE FILLER	10		
Automatic, 10; hand.....	10		
BOTTLE WASHER	10		
Machine, 10; hand, 5.....	10		
OTHER UTENSILS	5		
Smooth.....	3		
Free from rust.....	2		
WATER SUPPLY	10		
Water: From deep well, 10; city main, 1.....	10		
Allow 10 if water has been examined and passed by Health Department.....	15		
DRESSING ROOM	3		
Hot and cold water.....	3		
Sanitary lavatory, soap and towels.....	3		
Bath tub or shower bath.....	6		
Uniform working suits and caps.....	3		
Total	100		
BUILDINGS	25		
Cleanliness:—			
Ceilings—Painted, 1; clean, 2.....	3		
Walls—Painted, 1; clean, 2.....	3		
Floors.....	4		
Windows and ledges.....	4		
Free from flies.....	7		
Free from odor.....	4		
APPARATUS	25		
Cleanliness:—			
Bottle filler and capper.....	8		
Bottle washer.....	7		
Rinsing tubs.....	3		
Vats.....	4		
Pipes.....	3		
CONTAINERS	15		
Bottles:—			
Well soaked, washed and rinsed.....	10		
Barrels washed, live steam crates washed.....	1		
HANDLING OF PRODUCT	10		
Protection from dust and flies: Covered vats.....	3		
Storeroom properly protected Bottle caps protected.....	4		
EMPLOYEES (HANDLING PRODUCT)	25		
Medical examination.....	15		
Clothing clean.....	3		
Hands clean.....	4		
Hands free from sores.....	3		
Deduct 10 points from score allowed for smoking or expecto- rating in parts of building where product is being mixed or handled.			
Total	100		
Score of Equipment.....Multiplied by 1 =		Score of Methods.....Multiplied by 2 =	
Total		Divided by 3 = FINAL SCORE	
Signed		Inspector.	

for soft drinks which creates much competition and makes for the employment of a better class of workers. Paper cups are very generally employed in many of the better class places. Checking up of the less desirable places is much retarded because of distances and the lack of adequate automobile service for the inspectors. Our experience with sterilizers as used in places maintaining soda fountains would indicate that a definition of sterilization is as much a necessary part of any ordinance as would be an indication of the proper method for washing glassware. Sterilization should really read disinfection by heat or other means.

Public Demand for Cleanliness

In order to improve the general quality of beverages dispensed at different stands and soda fountains, and

to protect the public from the dangers that may result from improperly cleaned containers and careless attendants, greater supervision should be exercised directly by the health department. The dispenser may be stimulated through an appeal to the commercial side of his work but the general public must also be educated to the desirability of cleanliness in places in which it consumes food and drink. However, while sanitary conditions should determine patronage, location and the personality of the dispenser both play important rôles. As Mr. Able, director of inspection of the Alabama state department of health has well said: "The problem today exists in the small corner fountains on the skirts of the business center or in the outlying sections of the community, or in the rural founts."

First of all there is necessity for

4. First report, Vol. XII, Nos. 1 and 2, January and February, 1922, A. J. P. H. Final report, to be published by the U. S. Public Health Service, 1923.

5. Mannheimer, Wallace A., and Ybanez, Theresa, A. J. P. H., 1917, No. 7, p. 614.

6. Saun, Anna I. van, Bancroft, Ada W., and O'Gorman, James J. A. J. P. H., 1922, No. 8, p. 669.

7. loc. cit.

an ordinance to meet the needs of the individual community governing the operation of soft drink establishments and soda fountains and requiring permits for their operation. These permits should not be issued until inspection has shown that the location, construction, and equipment of the buildings meet the approval of the health department. Furthermore, provision should be made to insure the right type of personnel and to quickly eliminate anyone afflicted with communicable disease. Sections 37-47 of the sanitary code of the department of health, of Yonkers, N. Y., governing the manufacture and sale of ice cream and soft drinks and the regulations of the Alabama state board of health admirably cover this situation.

Second, special regulations should be promulgated and enforced requiring the disinfection of utensils used in serving drinks to the public. (a) In the case of bottling works, provision should be made for the washing of bottles in alkali solutions of proper

strength (3 to 6 per cent) at temperatures of about 120° F., followed by thorough rinsing in hot water. (b) In the case of glasses and spoons at soda fountains, efficient washing in hot, thoroughly dissolved soap or other alkaline solution frequently changed should be practical (jars of soap jelly might be kept on hand for the purpose) after which all utensils should be rinsed with clean hot water. Individual paper cups, carefully kept from possible contamination, are highly desirable.

Third, regulations should be enforced for the protection of all drinks to be consumed by the public from contamination with disease germs by means of unclean vessels in which they are prepared, stored, or served, and from flies, gnats, or similar insects, and gross particles of foreign matter or dust.

Fourth, medical examinations for the detection of tuberculosis, typhoid carriers, venereal diseases and skin eruptions should be made at intervals,

of all persons engaged in the preparation or serving of soft drinks to the public.

Fifth, there should be inaugurated regular inspections with collection of laboratory samples, and scoring of soda fountains and other soft drink establishments. Such inspections require high grade individuals rather than mere political employees, as they must be carefully performed. At times, as for example in New York in 1920 when influenza was prevalent, it may be advisable to institute special inspection service. Particular attention was then given to restaurants, lunch rooms, drug stores, and other establishments where soda water and beverages were dispensed. Although care was exercised not to issue permits until proper washing facilities were installed, it was necessary in fifty-six instances to serve summons on store-keepers or stand-keepers who failed properly to cleanse food and drinking utensils after use.⁸

Score cards have demonstrated their value to food inspectors and apply equally well to this service. A sample score card for bottling works which has already proved its usefulness is reproduced through the courtesy of the Richmond health department. In addition, a somewhat different type of score card for soda fountains is presented, through the kindness of Mr. Abele, who writes as follows: "The demerit schedule of scoring has been adopted by this bureau. We assume that all establishments have a perfect score before we inspect them. Our inspectors then point out deficiencies, and demerit the establishment accordingly. When the score is complete, the proprietor has his deficiencies especially called to his attention by his demerits. The inspector has had to place only a few figures on the schedule, and I find it of considerable advantage in the compilation of reports or detailed studies of conditions. Whenever the regulations are amended, further deficiencies can be charged against the total scores without altering the whole schedule."

8. Monthly Bulletin, Department of Health of New York, September, 1921.

The minimum unit for a full-time county health department in California consists of a full-time physician as health officer, public health nurse, sanitary inspector, and office clerk, each of whom must devote full time to the duties of his office. The minimum annual appropriation is \$10,000. Such units have recently been organized in Monterey, Orange, San Joaquin, and San Luis Obispo counties.

THE SODA FOUNTAIN SCORE CARD

BOARD OF HEALTH.

Name of establishment.....Address.....

Name of proprietor.....

Date....., 192... Inspector.....

TO THE PROPRIETOR: The Board of Health has made an official inspection of the above-named premises, and hereby respectfully notifies you of defects in sanitation, as indicated in the right-hand column below. Each demerit represents a condition to be avoided and reduces the possible score. If no demerits appear, your premises have been found entirely satisfactory. You are requested to remedy the defects in sanitation here indicated within days from the date of this notice.

Health Officer.

Study Your Score, and Avoid These Demerits in Future Scores.

Character of Defect	Demerits	
	Possible	Actual
APPOINTMENTS		
Soiled floor behind counter.....	1-3	.....
Soiled counter.....	1-3	.....
Soiled backbar.....	1-2	.....
Soiled interior or piping of syrup containers.....	1-5	.....
Absence of trunk sewer connection; or improper ultimate disposal of waste water.....	5	.....
Insufficient or improper disposal of solid wastes.....	3-5	.....
SERVICE		
Improperly disinfected drinking vessels.....	10-20	.....
Improperly disinfected spoons.....	10-20	.....
Exposed syrups, preserves, whipped cream, etc.....	5-10	.....
Unprotected cones.....	3-5	.....
Unprotected straws.....	3-5	.....
MILK		
Unpasteurized.....	3-5	.....
Temperature above 50 degrees F. (one point for each degree).....	1-5	.....
Improperly drawn.....	1-3	.....
Unprotected.....	2-5	.....
ICE CREAM		
Made from unpasteurized mix.....	3-10	.....
Unprotected.....	5-10	.....
Improperly dipped.....	5-10	.....
Manufactured under improper conditions.....	2-5	.....
SYRUPS		
Made or stored under improper conditions.....	3-5	.....
ICE		
Manufactured from water of questionable quality.....	2-5	.....
Unwashed before chipping.....	5-10	.....
Chipped in unwashed utensils.....	5-10	.....
DISPENSERS		
Soiled clothes.....	2-5	.....
Soiled hands.....	3-10	.....
Inexperience or carelessness.....	2-10	.....
TOTAL DEMERITS		.....
FINAL SCORE		.....

Public Health Progress in Czechoslovakia in 1922

By HYNEK PELC, M.D., C.P.H., SPECIAL CORRESPONDENT OF THE NATION'S HEALTH, PRAGUE, CZECHOSLOVAKIA.

THE Czechoslovak Republic has recently completed the fourth year of its independent existence. It seems worth our while to glance briefly at the last of these four years and observe how much has been achieved in the way of health conservation in this nation counts a population of thirteen and a half millions.

Three important laws bearing on public health were enacted during 1922. By the first of these, the state took over the salaries of local health officers so that the Ministry of Health will have its direct representatives in localities from five to six thousand inhabitants and upward. The local health officers will be part time appointees and the salary will be larger in poorer districts than in those where the physician will be able to make his living from private practice. It is understood that this is a provisional arrangement and that it is only on account of the strictest economy which must be enforced in every branch of public service that the public health administration must content itself with such a part-time service.

A venereal diseases law was enacted, making the treatment of venereal diseases obligatory and providing free treatment for those who are unable to pay for it. The "regulation" of prostitution was abolished and state control of the treatment introduced for persons who interrupt their treatment before complete cure. Thirdly, a law restricting the sale of alcoholic beverages to minors was put into force, which provides that no alcoholic beverages may be sold to persons under eighteen years of age.

The Ministry of Health augmented its budget from 149 millions to 207 millions in spite of the deflation policy of the government.

Two important studies were completed in the Ministry in the Division for Study and Reform of Health Activities. A complete tuberculosis survey of the state was published with an analysis of present institutions, an analysis of statistics and specific recommendations. A similar study was worked out for venereal diseases and is to be published soon; and a study of infant mortality is being prepared. A public health survey of Greater Prague was also issued.

The Ministry is developing a division of public health education. Every

The last four years in Czechoslovakia have seen the creation of a complete health organization, the successful enforcement of far-reaching statutory regulation, the institution of important research, and demonstrations looking toward the development of administrative technique.

Chairs of social medicine have been established in the schools and opportunities opened for scholarships in public health, and governmental interest is at play on far-reaching measures of insurance against invalidity and the infirmities of old age.

opportunity in the course of public life is seized by the Ministry in order to bring before the general public the idea of improving the health of the people.

A demonstration in rural hygiene was started in Kvasice to develop the technic of health administration in rural communities.

In the way of public institutions, a state school of dentistry was opened in Prague with a one-year post-graduate course for doctors of medicine. In the same city a radiological institute was equipped and given 3.2 gr. of radium which makes it the second largest institution of this kind on the continent. The number of beds for tuberculous children was increased by one hundred by a new sanatorium opened at Sumperk. The actual construction of the state Institute of Hygiene with a school of hygiene was started with the financial assistance of the Rockefeller Foundation.

Medical faculties in Brno and Bratislava were almost completed so that they will help the Prague medical faculty to master the influx of foreign students coming to Czechoslovakia for their medical education. The medical faculty of Brno created a chair of social medicine which is the first chair of the kind in the Czechoslovak republic. A public health course for physicians has been initiated.

The organization of health centers was continued and a number of tuberculosis dispensaries created. The Ministry of Health has taken over the twenty-one child health stations which

were created by the American Red Cross in all county cities and included them in the scheme of health centers.

A simplification of the work in the field of child welfare was brought about by the coalescence of two important child welfare organizations. A survey of child welfare work was made in the province of Moravia and the results shown at the child welfare exhibit in Brno.

The National Council of Social Hygiene, which is analogous to the American National Health Council, has framed its policy and become an effective organization for the coordination of the social and health work of the country.

The general congress of sickness insurance associations adopted a resolution in which the development of a health program by the insurance bodies was urged. The present government included in its program for the next year the organization of a system of compulsory old age and invalidity insurance.

An active committee on social medicine was developed by the young generation of the Czechoslovak Association of Physicians. A congress of social medicine was organized by some of its members in Carpathian Russia.

In the course of the year 1922 all foreign missions working in Czechoslovakia left the country. Mr. A. C. Ringland, representing the American Relief Administration, left early in the spring; Dr. H. O. Eversole turned over the child health centers erected by the American Red Cross to the Ministry of Health in the summer; and the English mission of Lady Muriel Paget withdrew in the first months of the year. The representative of the Rockefeller Foundation, Professor S. M. Gunn, transferred his residence to Paris.

This may be considered as a sign that Czechoslovakia has already returned to its pre-war vigor and the years' record seems to indicate that the development of the public health campaign will proceed in this country with increasing vigor as time passes with increasing enthusiasm as time passes on.

The Maternity Center Association of New York has offered a prize of one hundred dollars for the best scenario for a film designed to show the benefits of prenatal care.

Walls and Wings—The Spirit of Health Education

By GRACE T. HALLOCK, AMERICAN CHILD HEALTH ASSOCIATION, NEW YORK CITY.

THE wise men of Gotham once did several foolish things to keep the king from cutting off their noses. The silliest thing they thought of doing was to build a stone wall about a field to keep in a skylark.

In the past we have tried to build a stone wall about the health of our school children by teaching them only the dull facts of physiology and hygiene. We forgot, or else we didn't know, that stone walls cannot enclose the skylark mind of a child.

The field of health must be made attractive to the child before he will make it his abiding place. It must be stocked with food for his thought, wing space for his fancy, and a testing ground for the practice of what he knows.

Knowledge, imagination, practice—they are the three essentials of health education. Knowledge furnishes the child with information to satisfy his eternal questions. Imagination makes the knowledge attractive. Practice gives him a chance to use it for the formation of the good health habits.

One day about five years ago, while we were working on the outside of the field of health, a little boy passed by. He was inquisitive, as all little boys should be.

He stood awhile watching us pile long lists of the bones of the body on top of minute descriptions of the circulatory and nervous systems. Then he shifted to the other foot and said: "What are you doing that for?"

We replied: "Why this is a fine field, full of the sweet ripe fruit of health and the blue flowers of happiness. We saw a sturdy, rosy-cheeked boy in there the other day, and we all thought that if we could only keep him there what a fine man he would grow up to be. So we're building this wall to hold him in."

The little boy grinned. He was rather pale and thin but he had a smile—Oh my!

We were very busy, so we turned our backs on him then, but he didn't go away. He hung around throwing pebbles at the wall and scuffing his feet in the dust as all boys do in idle moments.

At last we finished the wall. It was high and strong. We couldn't find a crack in it anywhere. Historical scenes were set in niches around the inside to make it interesting. The lit-

tle circus boy was there who died because the gold paint hadn't been washed off before he went to bed. The Black Hole of Calcutta was there with all the people in it gasping for breath. If anything could keep a child in the field of health, we thought that wall would surely do it. No fact about the body had been left out. It was all very reasonable and sound.

We turned to ask the little boy what he thought of it, and lo! we saw a fluttering about his shoulders. He was grinning harder than ever.

"It's a fine wall all right," he said, coming a little closer, "and I know



Wide World Photos
School girls nowadays learn that health habits are more potent beautifiers than paint and powder.

what it's like from the inside, too. I watched you put up the Black Hole of Calcutta before I flew out."

"Flew out?" we gasped. "Why, are you the little boy we built the wall around?"

"I certainly am," he said. "Now, that Calcutta scene started out fine with a cave. I thought I'd stay awhile if you were going to make it interesting like that. I thought it might turn out to be a secret treasure cave, and then when it came to be what it is, it sort of scared me. I had a feeling in my chest as if I couldn't breathe, and that was funny because the 'breathing' part of the wall said that scene meant we need fresh air, and I was getting it all right. Well, after awhile I got sort of tired of staying in there anyway, so I just flew out."

"Flew out?" we repeated again.

"Why sure, don't you see my wings?" he asked. "All of us children have wings, only we don't go around showing them all the time. Most of us only use 'em when we have to get away from walls like this. It's funny; grown-ups don't seem to like wings," he added sadly. "Whenever we use them we get scolded. It's probably because of the walls."

One of us looked very thoughtful and then asked the little boy: "What would you advise us to do to keep you children from flying away from the field of health. You do, you know. Just look at yourself, your legs are skinny and your face is white. You couldn't win a race if you tried. And yet in there you were quite round and rosy."

We were all rather aghast at this turn in the conversation. Who ever heard of a grown-up asking a child for advice?

"I'll tell you," said the little boy sitting down on one of the long words that we couldn't fit into the wall. He turned to the one who had asked the question: "Suppose you were a little boy and someone gave you a set of blocks for Christmas. And when you'd taken the cover off the box you found that all the blocks had been glued together! You could set them up and learn all the A, B, C's on one side, and the cats and rats and ducks on the other, and the mother goose rhymes on the ends; but you couldn't make giants' castles with them or treasure caves or factories or churches with tall steeples. Or suppose you were a little girl like my sister and your mother gave you a doll's house for your birthday. But when you peeped inside you found that all the rugs had been glued to the floor and the curtains nailed to the windows and the chairs and tables and beds screwed to the floor. Suppose, even, that the dolls had their clothes sewed on and you couldn't undress them for bed or wash their petticoats!

"That's what you grown-ups do when you put the things we should know in walls. We like to know things, but it isn't any fun knowing, if you can't play with what you know or make things with it. That's where our wings come in. They are called imagination. They help us play and work with the things we know. Then pretty soon we do what we know we should without thinking."



Campbell Studios
The "Jolly Jester" of the American Child Health Association knows that children have wings.

"Knowledge, imagination, practice," murmured the one who had asked the little boy for advice.

"Now that field there," went on the boy jerking his thumb over his shoulder, "Why don't you tear down the wall and scatter the facts all over it? Put some of 'em down rabbit holes, and hide some in the trees. We could make a game of hunting for them ourselves. You might even hang a few from the stars so we could try our wings.

"But don't think, please, that we'll stay in that field because you say it will make us healthy and happy, or because you put a wall around it. Puff! What are health and happiness to us? Can we build castles out of happiness or make a game of

health? When you show us how to do that, we'll stay in your field forever. As for walls! What are walls to wings?" crowed he, as he flew far away into the blue sky.

We looked at each other, and then some of us said, "he's right."

That was in the spring of 1918 when the Child Health Organization of America (now incorporated in the American Child Health Association) was founded. Since then, the play spirit has infused new life into our old conception of health education. The game of health, with rules like any other game, is being played all over the world. "Judge Scales" presides on weighing day in thousands of schools and tells the children whether or not they are playing the game.

Imagination has given wings to the teaching of positive joyous health. And this movement of making health attractive through an imaginative appeal is not a mere flash in the pan, depending for its success on exceptional teachers here and there. It is not a monarchy whose only guarantee of good government depends upon the personality of a king. Rather, it is a world democracy founded on the principle that all children are created with the wings of imagination, and the right to have those wings used for the furtherance of sound bodies and happy minds.

Health Work in Colorado Expanding

Otero is the first county in Colorado to have voted the support of three public health nurses. This does

not include the two school nurses employed by School Boards in the towns of Rocky Ford and La Junta, which makes a total of five nurses in the county whose salaries are paid by public funds and provides one nurse for every four thousand persons.

A few farsighted persons believe that a project providing for three public health nurses supported by taxation could be carried on, but the general opinion was that during these days of high taxation support for one nurse was all that could be expected.

The Field Secretary of the Colorado Tuberculosis Association realized the tremendous need of disease prevention and care of the sick in this pioneer field, where there is a large floating and Mexican population and arranged for a public meeting with the county commissioners, which was attended by members of the Lions, Rotary, Commercial and Federated Women's clubs. Some of the heaviest tax-payers and most prominent citizens made stirring talks in favor of three nurses and convinced the commissioners that if the people were willing to tax themselves for better health, it was up to the county to carry out the people's wishes. The commissioners therefore voted \$54,000 to pay the salaries for three public health nurses.

This county has led the way in Colorado. There are five other counties where the public health nursing service has been taken over by county taxation. And wherever nursing service has been instituted other services have expanded accordingly.

Tuberculous Children Play Outdoors in Winter



At the left tuberculous children at the "Seaside," Niantic, Conn., enjoy skating and at the same time gain strength for their battle for health. At the right is evidence that the bench in winter is no less attractive to these children than it is in summer to the less hardy adult.

A Comparison of Methods of Street Cleaning

CITIES in the United States containing enough paved streets to produce a problem in street cleaning number more than seven hundred fifty. Many of these cities have been in the past, and far too many are at present, satisfied with methods that have left much to be desired regarding cost, convenience, and sanitation.

Before the recent war the greatest advances in this problem were made in England and Germany. Quite recently American cities have been giving much needed attention to the study of street cleaning. We have now apparently reached the point where methods in the United States may be held up as examples to the uninformed, according to George C. Dodge, author of a pamphlet entitled "What is the Eventual Street Cleaning Method."

The street cleaning methods of today are hand-patrol, sprinkling wagon, and horse-drawn sweepers, squeegee, flushing, motor driven combination machines that spray the street enough to settle the dust and sweep it and collect the sweepings, and suction or vacuum machines. It may be that time will wear out all but one of these methods and the system that stands this test of time will then be the "standard eventual major method."

Mr. Dodge's comparison of the advantages and disadvantages of various methods is made with a view to determining which of the systems have merits that may enable them to withstand the process of elimination that may eventually determine a standard method.

The hand patrol system has one feature that is not duplicated in any other system; a feature that will insure its use in some form or other in spite of competition. Its real merit lies in the fact that much refuse is removed from the street as soon as it is placed there. Horse droppings are removed almost constantly and the advantage of such prompt removal will insure the continued use of a patrol system though it is one of the most costly methods in use. It is reasonable to expect, however, that in time the "hand" will be removed and the push cart and broom will be replaced by a motorcycle type of machine that will dart in and out of traffic and pick up refuse quickly and economically. Another possibility is that a hand propelled machine may be devised that will increase the patrol-

ling capacity of the sweeper. "It may be to the pavement what the carpet-sweeper is to the home." But proposals that have been made thus far in this direction have been impracticable, and if one is finally evolved it will have to be different in fundamental idea from those already suggested.

There are several objections to the hand patrol system as it is now practiced. The first of these is equally applicable to all systems as practiced in the majority of cities. The defect referred to is the practice of employing old men, cast-offs, and in general the most inefficient type of labor that can be imagined. "It seems that every man to whom a city administration is obligated and who cannot be used elsewhere is placed in the street cleaning department."

Without making any brief for militarism it would seem that a department manned by first class personnel and subject to the discipline, organization, and routine of a police department would make for greater efficiency in a street cleaning department.

"Titles and rank to which a private might be promoted, with rewards for distinct service, strict discipline, and thorough and complete organization would be of immense help."

Another objection to the patrol system is that the refuse is often placed in cans, some times without covers, and these cans are then al-

lowed to remain on the curb for hours before they are removed by a collecting wagon. This difficulty can be partially removed by so timing collections that full cans will remain on the curb but a short time. An even better solution of the difficulty would be the construction of openings in the sidewalk with hinged covers into which the cans could be placed. The collecting wagon could then remove these and leave empty ones in their place.

The greatest objection to the hand patrol system, however, is its cost. Reports that it is the cheapest system are erroneous. It is in fact one of the most expensive if it really cleans the streets. The truth of the matter is that it cleans only that part of the street on which droppings or other refuse is found. The number of square yards allotted to a patrolman varies greatly. One city reports from 2,160 to 15,600; another 7,000 to 14,600; another 8,000. At the end of a day when a patrolman has covered such a territory he has not cleaned it; he has swept but a small portion of it. If the entire surface of a city's streets were really cleaned by a hand patrol system the expense would be terrific.

Commercially Clean Streets

This brings up the question of what is desired in a "commercially" clean street. Is the pavement to be left as clean as a well cleaned floor? The kitchen floor is swept to remove the coarse material and then mopped to



A style of patrolman's cart in which the dust pan can be raised over the can and contents dumped.



A horse-drawn squeegee.

remove the dust. A combination machine followed by a flusher or squeegee would provide similar technic for the street. Few would care to say just what is meant by a "clean" street. Local conditions are all important in a consideration of this matter but most cities would be willing to have their thoroughfares a little cleaner than they are today if this could be accomplished without an undue increase in expense.

In cleaning streets with a horse-drawn sweeper, a sprinkling wagon usually proceeds the sweeper and lays the dust. Sometimes a small tank is used on the sweeper which sprays water ahead of the broom. After the dust is laid the sweepers, which have a broom set diagonally with the forward end toward the center of the pavement, start in the center of the street and each trip works the furrows of dirt nearer the gutter. From this wind-row the refuse is either shoveled directly into collecting wagons or collected after first being shoveled into small piles about every thirty feet. The former method is very inefficient unless the collecting wagon follows the sweeper without any great loss of time. "It requires the services of three to five pieces of apparatus, as many drivers, sufficient number of horses to handle the apparatus, and a hand collecting gang of not less than two men under the best circumstances. A gang, such as outlined, should cover from 6,000 to 11,000 square yards per hour."

The sprinkling wagon, delivering water by gravity, has a greater rate of flow when it is full than it does

when nearly empty. Aside from this it commonly delivers too much water to the pavement and converts the dust into mud. The rotary broom then grinds this grit into the pavement to the detriment of the latter. The coarse matter is carried to the gutter but when the street dries the dust is in as bad a condition as before.

It is probable that on an old style of pavement, such as cobblestone or granite block with poorly filled joints, these machines will give the best quality of work but it is expensive and not conducive to low cost of pavement repair.

The squeegee system is much like the horse-drawn sweeping system. In place of the rotary broom is substituted a cylindrical scrubber with rubber strips attached in a spiral formation. Its use is preceded by a

sprinkling wagon or flusher, preferably the latter. The squeegee wagon also carries a water tank which supplied water for the actual scrubbing operation. When the refuse finally reaches the gutter it is commonly pushed or floated to a manhole and dumped in a sewer.

The squeegee does its best work on light material and is therefore in this respect more efficient than a broom, but on the other hand the squeegee would be lost in a dirty street covered with every sort of coarse refuse. While scrubbing of the pavement with a rubber squeegee is possibly less harmful to the pavement than the grinding action of a broom working in mud, it necessitates the use of a greater amount of water, which is harmful, particularly when the squeegee is preceded by a tank by which water is placed on the pavement by force. The cost of the great volume of water used is seldom calculated.

Flushing of streets has appealed to the layman, but it has serious defects. The word may be used to mean flushing by hand with a hose attached to a nearby hydrant but more properly it refers to the use of a truck on which is mounted a large tank from which water under pressure is pumped onto the street. Its effectiveness depends on the angle at which the water is thrown from the nozzles. Such a method depends for its efficacy on the force of the water. There is usually enough force in the water to carry the greater portion of the dust and fine refuse to the gutter where a good portion flows to a catch basin or is easily pushed there. When used on heavy refuse the force of the water is sufficient to move the matter only a few inches where it then remains while the water flows on to the gutter.

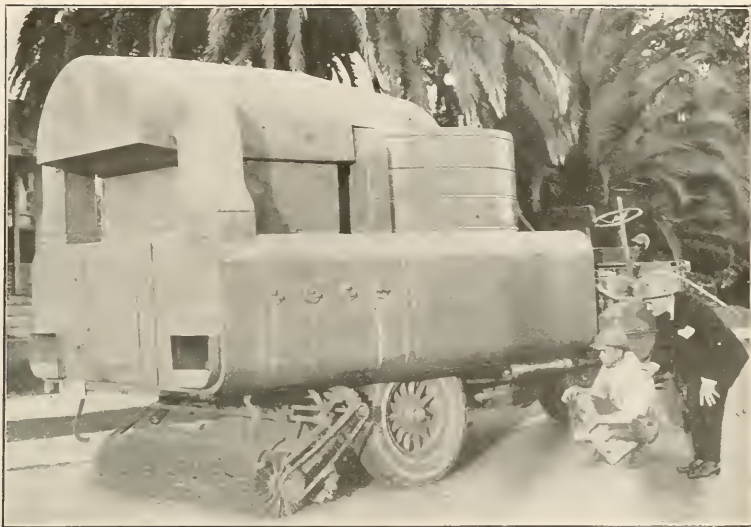


Motor-driven flusher with sprinkler attachment.

One of the largest flushers in America holds 2,500 gallons of water and seven minutes are required to fill it. Some appreciation of the amount of water used in a day and of the rate at which it is placed on the pavement can be gathered from the fact that it takes only four minutes to empty the tank. Aside from the amount of water used, the value of which is rarely considered, there is the cost of additional cleaning of catch-basins and sewers necessitated by virtue of the fact that disposal of the refuse is accomplished by means of the sewers.

Aside from the expense items of water and cleaning of catch-basins and sewers there is yet another item that should properly be charged against the method. This is the additional cost of pavement repair due to the use of water under pressure. Any exact estimation of this is, of course, impossible, but it should have an effect on the decision of municipalities to use or abandon this method.

A centrifugal pump usually supplies the force for placing the water on the pavement. This may either be driven from the motor of the truck or from an auxiliary motor, the latter being preferable. Now, pavement is made of aggregates bound together in the most thorough fashion. The finer



A vacuum machine used at San Diego, California.

materials are placed on the surface to produce a smooth roadway. Water forced on the surface will eventually wash out some to the binding material. If there is a weak spot in the pavement the water will find this, and under pressure develops this in time into a depression and finally into a pot-hole. This is particularly true where pavements abut on car tracks. It is difficult and almost impossible to secure a tight bond here and the water has a chance to work in and get at the sub-surface.

Hand flushing has the advantage

that the stream of water can be directed at any place long enough to move the refuse and can follow it into the catch basin with whatever amount of water is necessary to place it there.

Sweeping if followed by flushing would give a nearly perfect result as far as the actual cleaning is concerned, and even simple flushing is to be preferred to any of the methods thus far considered.

Motor driven combination machines settle the dust by means of a spray, cleans the street by sweeping, collects the refuse and carries it away. The machines are so constructed that all these operations go on simultaneously in different parts of the machine. Most of these machines now in operation are unable to get within ten inches of the curb, and with these the refuse in the gutters is either hand swept into the path of the combination machine or hand swept or flushed after the street itself has been cleaned.

Combination machines use only a small amount of water, not over three hundred gallons per hour. This is atomized and used only in quantities just sufficient to lay the dust. Five minutes after the machine has passed the street is dry. This minimizes water damage to the pavements and adds to the pleasures of autoists who object to wet and slippery streets.

The combination machine gets all the refuse and most of the dust. The combination machine is not a motor



Combination machine with sand spreading attachment—used in rainy weather to prevent slippery streets.

truck and it is usually poor policy to run it to a dump for the purpose of emptying the collection hopper. It is preferable to go to some quiet side street and transfer the refuse to a motor truck. Cleaning with motor-driven combination machines is no more and probably less costly than flushing, if the collateral cost of water, pavement repair, and sewer cleaning are added to the cost of the latter.

In the dim distant future city streets may be cleaned by vacuum. The machines of this type so far developed either suck the refuse directly from the pavement or by the use of a broom loosen the refuse, agitate it, and permit it to be placed in the col-

lection box by means of suction. Machines of these types will not remove heavy refuse and a man must be employed to pick up stones and other heavy materials and place them in a collection box provided for the purpose. Vacuum machines work at their best under absolutely dry conditions. Machines without a broom have no effect on refuse that is stuck to the pavement.

As far as ability to handle various types of refuse on different kinds of pavement is concerned, the vacuum is nearly a one-class machine. It is admittedly in its developmental stages at present. The problems involved are engrossing ones.

For the present and for the next

few years the motor-driven combination machine represents great progress toward a standard method. Casting aside its present defects it must also be admitted that a perfect vacuum system would come nearer meeting the requirement of an ideal street cleaning system than any other.

Street cleaning is not a simple problem. The variety of street surfaces and the many kinds of material that accumulate on them make it necessary that the ideal system shall handle both large objects and fine dust on rough as well as smooth pavements. This is a hard contract to fill. For economical, aesthetic, and sanitary reasons the attempt should be made.

Resolutions of the Oriental Red Cross Conference

THE following resolutions were adopted by the Oriental Red Cross Conference held at Bangkok, Siam, November 29-December 8, 1922. The delegates in attendance represent the Red Cross societies of Australia, China, Great Britain, India, Indo-China, Japan, Java, the Philippines and Siam. It is most important to note how well the general Red Cross program as it is visualized in Europe and America fits in with oriental conditions.

The Oriental Red Cross Conference in accordance with the request of the League of Nations, has considered what assistance Red Cross Societies can give in the matter of combating the abuse of opium and other noxious, habit forming drugs and urges that simple instruction regarding the dangers attendant upon such abuse be given a prominent place particularly in work among children, in any program of popular health instruction undertaken by national Red Cross Societies in countries where the abuse is prevalent.

The Conference considers that this work, if success is to attend it, must have the full support, material and moral, of the governmental authorities in the countries in which it is undertaken and recommends to the Secretariat of the League of Red Cross Societies that it requests the League of Nations to aid in securing such support from its state members.

The Oriental Conference desires to record its approval of the program of action adopted by the members of the League of Red Cross Societies at the General Council Meeting of March, 1922, namely, to create an intelligent demand for better health conditions and an increasing knowledge of the means of securing them, chiefly through the development, with the cooperation of the League Secretariat, of Popular Health Instruction, Public Health Nursing and Junior Red Cross.

The Oriental Conference recognizes

that the program in its entirety is not capable of being applied in all countries at the present moment, but it is convinced that an adaptation of one or more of the activities indicated is not only possible but very greatly to be desired. The Conference, therefore, recommends that each national society here represented take into consideration at once the question of which method should be adopted, having regard to the conditions of its country.

The Oriental Conference desires to record its conviction that the demonstrations and the reports which have been made before it and which have been carefully studied by the delegates have shown that popular health instruction is practicable within the present scope of every society here represented and that a successful method can be found to meet any conditions now existing in the Orient.

The Oriental Conference recommends that each national society here represented promote the formation in this country of a Nations Health Council for the co-ordination of all health educational work by governmental agencies and non-governmental agencies of national scope.

The Conference considers that such a national health council should be an organ for the purpose of mutual consultation among the agencies represented and should not undertake any program of health work as an operating organization.

The Conference requests the Secretariat of the League, in consultation with such governmental and other agencies as it may find useful, to make a study of the experience and possibilities of such health councils.

The Oriental Conference considers that the creation of an intelligent demand for better health conditions and an increasing knowledge of the means of securing them should eventually become a function of government, but it desires strongly to affirm its conviction that Red Cross societies should undertake to arouse public interest in this direction and to demonstrate

practical methods of meeting the need with the intention of withdrawing from any specific activity whenever governmental agencies undertake it as a permanent responsibility.

The Oriental Conference recommends that national societies here represented shall, in undertaking Junior Red Cross activities, keep clearly in mind the cardinal principles of organization enunciated by the Secretariat of the League.

The Oriental Conference, having taken into account the special educational conditions existing in some oriental countries, considers that the organization regulations of junior membership should provide that children who are unable regularly to attend school may be given an opportunity to participate in junior membership activities by associating themselves, as circumstances may permit, with children of the same age who are enrolled in the school units. It requests the Secretariat of the League of Red Cross Societies to make a special study of methods, by which problem of children so situated may be solved.

The Oriental Conference recommends that each Society represented, form, as soon as possible a committee of educational and health authorities to advise the direction of the National Society as to when and how Junior Red Cross work may be begun.

The Oriental Conference urges every society represented to undertake at once the formation of a committee on public health nursing in order that the special conditions of the country may be studied and a program of educating the public in regard to its health by the method of Public Health Nurses may be begun if it is deemed desirable.

The Conference urges National Societies in the Orient to avail themselves, not only of the technical studies made upon this subject by the Secretariat of the League, but also of the facilities for training representatives of their countries in this work, which are offered by the International Course of Training in London.

Energy Expenditure in the "Daily Dozen"

BY MARGARET M. JUSTIN, LABORATORY OF APPLIED PHYSIOLOGY, YALE UNIVERSITY, NEW HAVEN, CONN.

VARIOUS setting up exercises have long been practised rather generally in military and athletic organizations. Many individuals also use such exercises more or less spasmodically. Recently, owing to the prestige of Mr. Walter Camp in athletic matters, a series of exercises, devised by him and known as the "Daily Dozen," has been very widely introduced. Phonographic records which include vocal directions and musical accompaniment are also extensively utilized.

The exercises are described as designed, not to take the place of daily outdoor exercise, but rather to exercise the little used parts of the system, and in particular to improve the tonus and efficiency of the thoracic and abdominal viscera. Many persons of sedentary habits, or of impaired physique and even with weakened hearts, are trying the "Daily Dozen," and in some cases are practising it regularly. It is, therefore, important to know the amount of energy expenditure involved in the performance of these exercises.

The chief subject of the observations reported below was the writer, a woman of sound physique, age thirty years, height 167 cms. (5 ft. 6 in.), weight 67.3 kilos (148 pounds), accustomed to the active life of a graduate student in experimental science, but not in strict physical training.

As a control and background for the observations, the energy expenditure was first determined while the subject was sitting at rest and again while walking at what was as nearly as possible the maximal speed that could be maintained. From the respiratory volume during walking it is clear that any greater exertion would have involved distinctly labored breathing. The method of observation consisted in the use of the Douglas bag with mouth piece, and inspiratory and expiratory valves. The time of beginning and end of each observation was taken by means of a stop watch, and the volume of air in the bag was measured by means of a Danish wet meter. A sample of the air was analyzed in duplicate for oxygen and carbon dioxide. The figures from these analyses and from the gasometric measurements were then reduced to the per minute consumption of oxygen and expiration of carbon dioxide at 0° C, and 760 mm. The

respiratory quotient was calculated and the expenditure of energy in calories per minute.

The different exercises of the "Daily Dozen" were performed on other days and similar records taken of them. The data obtained are shown in Table I.

A glance at the right hand column of this table shows that, while some of the exercises are quite moderate in character, others involve a very considerable energy expenditure or, in everyday language, a very considerable muscular exertion. This is particularly true of the "crouch,"

TABLE I.—ENERGY EXPENDITURE AT REST, WALKING, AND WHILE PERFORMING THE VARIOUS EXERCISES OF THE "DAILY DOZEN."

Type of Exercise and Remarks	Respiration Vol. Liters per min.	O ₂ cc. per min.	CO ₂ cc. per min.	R. Q.	Cal. per min.
Subject sitting at rest for 20 min., at the end of this time determinations made	9.7	363	329	0.93	1.8
Sample taken under same circumstances 10 min. later	10.2	351	286	0.81	1.69
Subject walking 3.26 miles per hour on cement floor. Sample taken from moment of start to end of 2nd minute, a rapid walk, much more than the ordinary pace for this subject.	29.2	1285	934	0.73	6.06
Same as previous but sample taken from 3rd to 5th min.	29.1	1339	931	0.70	6.28
Continued the walk for total of 10 min. and then sat down. Sample taken immediately while sitting for two min.	14.8	548	385	0.70	2.56
The wave, 2 min. and 56 sec. Air sample taken throughout the period. Subject was more fatigued after the 2 nd min. than after walking 10 min. as in previous test.	22.3	981	669	0.70	4.6
After a rest of 20 min. the subject repeated the exercise for 4 min. with sample throughout.	20.5	882	615	0.70	3.9
The Grind for 5 min. Sample taken during first 2 and last 2 min.	20.4	678	530	0.79	3.2
Sample of first 2 min.	22.8	843	684	0.80	4.1
Sample of last two min.	16.0	592	480	0.81	2.84
The Grasp for 5 min. Sample taken during first 2 min.	16.6	634	551	0.85	3.08
Sample taken during last 2 min.	16.7	584	434	0.81	2.56
The Grate for 5 min. Sample taken during first 2 min.	18.9	605	491	0.81	2.90
Sample taken during last 2 min.	16.7	616	468	0.76	2.90
The Crawl for 3 min. Sample taken during first 2 min.	17.0	699	514	0.78	3.32
Sample taken during last 2 min.	33.0	1516	1122	0.74	7.13
The Curl for 3 min. Sample taken last 2 min.	17.3	637	484	0.76	3.03
Sample taken last 2 min.	17.5	628	490	0.78	3.0
The Roll for 3 min. Sample taken last 2 min.	12.2	407	317	0.78	1.95
Sample taken last 2 min.	25.8	1154	877	0.76	5.48
The Weave for 3 min. Sample taken last 2 min.	25.9	1291	952	0.74	6.09
Sample taken last 2 min.	18.0	759	576	0.76	3.6
Subject doing in order exercises 1, 2, 3. Time 3 min. Taken throughout	20.0	737	560	0.76	3.51
Subject doing exercises 4, 5, 6. Time 3 min. Sample taken throughout	14.8	530	412	0.78	2.53
Subject doing exercises 7, 8, 9. Time 4 min. Sample taken throughout	17.3	665	519	0.78	3.18
Subject doing exercises 10, 11, 12. Time 3 min. Sample taken throughout					
Total energy expenditure in doing the whole series in 13 min.					41.9
Energy expenditure for 13 min. during sitting rest					22.7
Cost of "Daily Dozen"					19.2

which consists of deep knee bending. It is true also to a slightly less extent of the "weave" and the "wing," in which the trunk is quite vigorously turned and flexed. In the "crouch" the energy expenditure considerably exceeds, and in the other two mentioned, it approaches that of rapid walking. For the whole series the energy expended would exceed that during sitting rest by 22.7 calories, the equivalent of a lump of sugar.

The comparison of these exercises with the exertion of rapid walking given, however, a decided under-estimate of their vigor. Walking is the most efficient exercise of which the body is capable. Very large muscle masses—those of the legs and to a considerable extent also those of the trunk, arms, and neck—are utilized. The distribution of the work over such an extent of the motor mechanism is sufficient to indicate that only a small part of the total energy expended is contributed by any one muscle. On the other hand, the smaller number of muscles taking part in an artificial exercise requires that, if the total energy expenditure is approximately the same as that in walking, the particular muscles involved must make a very much greater exertion than do any of the muscles in walking.

From this point of view some of the exercises, particularly those above mentioned, and to a considerable extent others also, are seen to involve a decidedly strenuous exertion. It is an exertion also which for the beginner is of a sort quite different from those which the muscles habitually perform. It is therefore correspondingly more severe. The case may be here mentioned of a man of fifty or rather better than average strength and health who was made too lame to walk for several weeks after doing the "crouch."

A few observations were also made upon two men and two women in order to determine the relative vigor with which the entire series of exercises was performed when the phonograph records were used simultaneously in comparison with their performance in silence without the music and vocal directions. In these observations, (Table II) the energy expenditure was not determined during the exertion, but during the five minutes immediately following. This method offers of course no exact information regarding the amount of energy expended during the exercise. But as it is now known¹ that the recuperative processes in muscle proceed for a period after external work is termi-

nated, such observations may be utilized for the comparative purpose to which they are here put.

As a glance at the last three lines of Table II shows, the average pulse rate was increased to 150 per cent of the resting value by the exercises with music and only to 125 without music. The volume of air breathed and the energy expenditure in calories varied, as is usually the case, in closely proportional amounts, namely 269 and 262 per cent of the resting value after exercise with music and 165 and 164 without music. The figures for ten minutes after the exercise show similar relations, but are not quite so closely parallel.

As Professor Henderson and his collaborators have emphasized in previous papers² from this laboratory, the only index of respiration that has any considerable value is the measurement of the volume of air breathed per minute. The rate of breathing by itself is not worth counting, but as the data here reported demonstrate, there is the most direct and general value to be derived from measurement of the volume of air breathed.

The amount of energy expended

siderably. In some of them it is scarcely greater than that of slow walking; in others it exceeds the energy expended in very rapid walking.

The energy in these more strenuous exercises is expended by rather small groups of muscles unaccustomed to such strain, and involves for them therefore an excessive exertion.

While some of the exercises are mild, the use of the more strenuous parts of the series by the aged or by those in poor condition, should be begun with caution, and should be increased from day to day very gradually. Indeed for such persons, certain of the exercises, particularly the "crouch," was better omitted.

The phonographic musical accompaniment and directions increase the pleasure and vigor of the performance of these exercises, and are to be commended for all except the more strenuous numbers in the series.

Finally, the writer desires to express her thanks to Professor Yandell Henderson at whose suggestion this investigation was undertaken, to Dr. Howard W. Haggard for instruction in methods and assistance in the performance of the work, and to Mr.

TABLE II.—AFTER-EFFECTS ON PULSE, RESPIRATION, AND ENERGY EXPENDITURE, BY PERFORMING "DAILY DOZEN" WITH AND WITHOUT PHONOGRAPHIC DIRECTIONS AND MUSIC.

Subject	Symptoms Measured	With music			Without music		
		At rest sitting	After Daily Dozen	10 min. later	At rest sitting	After Daily Dozen	10 min. later
Y. H. male	Pulse per min....	.....	.....	.....	.....	.....	.....
	Respiration, liters per min.	7.7	28.1	11.0	7.8	11.9	10.5
170 lbs.	Calories per min..	1.55	5.49	2.21	1.64	2.49	2.18
M. M. J. female	Pulse per min....	64	88	72	64	78	70
30 yrs.	Respiration, liters per min.	7.0	17.7	10.2	6.8	12.9	8.2
148 lbs.	Calories per min..	1.20	3.05	1.91	1.17	2.33	1.50
M. B. female	Pulse per min....	72	130	90	72	92	86
27 yrs.	Respiration, liters per min.	10.7	23.1	16.2	10.0	17.8	12.4
142 lbs.	Calories per min..	2.19	4.91	3.58	1.97	3.75	1.53
I. V. H. male	Pulse per min....	70	96	79	70	88	74
34 yrs.	Respiration, liters per min.	9.3	22.6	12.4	10.7	15.7	11.1
168 lbs.	Calories per min..	1.74	4.09	2.49	2.15	2.84	2.0
Averages in per cent of resting values.		100	151	117	100	125	112
		100	269	143	100	165	121
		100	262	149	100	164	104

while doing the various exercises of the so-called "Daily Dozen" has been determined. It may be estimated at about twenty-three calories over the expenditure during sitting rest, or, in terms of diet, as equivalent to about six grams, or one small lump of sugar.

The energy expended in the different exercises of the series varies con-

Walter Camp for a fund sufficient to cover the rental of the phonograph records.

The New York State Industrial Commission estimates on the basis of records for the year 1922 that one-half of the accidents in our factories, with the resultant loss of \$50,000 a day to industries, is due to ignorance of the English language.

1. Hill, A. V., *Physiological Reviews*, 1922, 11, 310.

2. Henderson, Y., and Haggard, H. W., *J. A. M. A.*, 1922, 78, 697.

Public Health in England

THE annual report of Sir George Newman, chief medical officer of the Ministry of Health, for 1921, gives an interesting picture of the encouraging progress of public health science across the water. The leading causes of death in England during 1921 were as follows: Diseases of the heart, 12%, diseases of the nervous system and sense organs, 11%, cancer, 10%, pneumonia, 8%, tuberculosis of the lungs and bronchitis, each 7%, premature birth and diseases of early infancy, and of old age, each 6%. It is interesting to notice the relatively low place occupied by bronchitis and pneumonia as compared with our American experience. Infant mortality is nearly as low as last year (83 per 1,000 births), but the mortality among women in childbirth still remains high, showing little or no improvement in the last thirty years. An age analysis indicates very encouraging results in the lower age periods, but in comparison with Sweden the death rate in adult life is not satisfactory. Seventy years ago the expectation of life at forty-five was less in Sweden than in England but today the expectation of life at forty-five in Sweden is three years higher than that in England.

Very interesting data are presented as to the result of medical examinations of school children and of the workings of the National Insurance Act. In the schools about 40% of the children are found to be defective, distributed about as follows: malnutrition, 3%, defective vision, 10%, diseases of the nose and throat, 15%, enlarged glands, 6%, serious dental disease, 20%, anemia, 3%, deformities, defective hearing and skin disease, 2% each. It is obvious that the standard of malnutrition is much less severe than that commonly used in this country. Under the Insurance Act it appears that the working population of England and Wales loses through sickness upwards of 278,000 years of working time or about 2% of the total working time of the group involved, a result checking almost exactly with the observations made by the Metropolitan Life Insurance Company in this country. The average number of insured persons for each physician on the insurance panel was approximately one thousand and never exceeds three thousand.

It is encouraging to notice that there are now 1,869 infant welfare centers in England, 3,378 health visi-

tors, 421 tuberculosis dispensaries, 339 tuberculosis officers, 18,943 beds for tuberculosis, and 194 venereal disease treatment centers. In regard to the latter it is of much interest to note that the number of new cases which rose steadily to 105,185 in 1920, fell to 84,715 in 1921 although the total number of clinic attendances rose from 1,488,514 to 1,653,692.

Sir George makes a strong plea for the control of public health work so that we may be certain that full value is realized for every dollar that is expended. He points out, however, that of the total taxes for England and Wales, 20% is spent for education, 17% for highways, 14% for poor relief, 17% for sewers, removal of house refuse, water supply, parks, baths, cemeteries, isolation hospitals and vaccination, and only 1% for the campaigns against maternity and child welfare, tuberculosis and venereal diseases. He cautions us that we must be patient in waiting for the fruits of preventive medicine. "In a true sense

the nation can buy health, but the 'goods' are not delivered on the date of payment. Public expenditure on national health is like expenditure on a life-boat or a fire engine; even more, it is like a long-term investment. It yields its interest with absolute certainty, a thousand fold, but only in the course of years and sometimes only in the course of generations. It is money hidden in maternity, in good schools, in pure food, in clean streets, in sanitary houses, in an abundant water supply, in dispensaries, hospitals, and sanatoriums, and in the vast network of a sanitary and protective cordon in every village and city in the land. Its efforts are unappreciated until they are withdrawn. Yet without this investment the nation is bankrupt."

That naturopaths are physicians has been upheld in the appellate court of California. In view of this decision the state prohibition director has requested National Prohibition Commissioner Haynes that naturopaths be accorded the privilege of obtaining whisky prescription books.

Buying Vitamins of the Grocer



The mother and children who go to the market with a basket, and who do not pour the vegetable juices down the sink drain pipe, will not suffer from vitamin deficiency in the summer time.

Health center activities at the Massachusetts-Halifax Health Commission continue to interest the people of Halifax and Dartmouth. In February 3,374 instructional home visits were made by public health nurses and visiting housekeepers to a total of more than 2,100 individual homes. In the same month 1,047 babies under two years of age were being supervised by the health staff in their homes. The medical service shows

929 medical, dental, and nursing consultations, more than half of these being in the nutritional classes. The above picture is reproduced from a highly interesting booklet on "Vitamins," distributed by the Commission for the instruction of the mothers in the selection and preparation of foods. "Use more natural foods," states the booklet; "cook for as short a time as possible; and don't let the drain pipe be better nourished than your family."

Digest of Sanitary and Hygienic Advance

Bacillus Welchii in Bread

A commercial bread starter recommended for the purpose of securing a constant inoculum of a gas forming bacterium in the preparation of salt-rising bread, has been found to contain organisms of the *B. welchii* type in numbers of about one thousand per gram. The addition of this starter to boiling hot milk and an over night incubation result in a light frothy mass in which the prevailing organism was the Welch bacillus and having from one to one hundred million bacteria per gram of material. Small quantities of bread from the interior of the loaves prepared in this way by several bakeries yielded the gas bacillus in almost every instance.

Cultures from the bread possessed only a low grade of virulence for guinea-pigs, while a type of *B. welchii* originally obtained from a wound was highly pathogenic. Loaves of bread made with the pathogenic strain were comparable to those made with the commercial starter.

Though commonly found in the intestinal tract of man and widely distributed in nature, this organism is known to be a dangerous pathogen associated with war wounds and claimed by some to be the cause of many cases of diarrhea. Koshier (*J. Infect. Dis.*, March, 1922, 32, 3, p. 208) thinks that in view of the many disputed points regarding *B. welchii* that such uses may be considered by some a public health problem and that the choice of such organisms whose use is beyond question, would be the safest course.

Creosote Oil a Mosquito Repellent

Observation that bridges in Yazoo County, Miss., constructed of timbers treated with creosote oil, were free from *Anopheles* mosquitoes while other bridges nearby made of untreated timbers were resting places for many, lead Coogle to test the effect of this oil as a repellent in the poorly constructed tenant houses which cannot be properly screened. The oil was applied in the quantity of one gallon to 420 square feet. Observations made ten weeks after application seemed to indicate that the creosote was still active.

The colored people who live in this type of house do not object to the application, no ill effects were noted, and it is certainly preferable to the

smudges of rags, leather, and feathers so universally used by these people to keep the mosquitoes away while they get a few hours sleep. (*Pub. Health Rep.*, March 9, 1923, 38, 10, p. 437.)

Phagocytosis of Carbon and Quartz

The findings of Fenn (*J. Gen. Physiol.*, Jan. 20, 1923, v, 3, p. 311) in regard to the phagocytosis of quartz and carbon particles are of interest in relation to the industrial dust hazard. The results show that leukocytes ingest quartz particles more readily than carbon in acid solutions, and carbon more readily than quartz in alkaline solutions. In the presence of acacia carbon is always preferred to quartz even in acid solutions. Manganese dioxide particles are ingested with extraordinary rapidity as compared with manganese silicate or quartz. The leukocytes are not attracted toward carbon or quartz particles but manganese dioxide exerts a distinct attraction for them. Spores of *Penicillium* are ingested more readily than quartz. Particles of quartz under one micron in diameter are not ingested as readily as larger particles of the same material.

The technic of the experiment consists of mixing the various particles with the peritoneal exudate from the rat and making counts on a warm stage.

Codliver Oil Inhibits Tubercle Bacillus

An attempt to discover whether the action of codliver oil, which has long been associated with the treatment of tuberculosis, has in relation to this disease other than a nutritive value, is reported by Campbell and Keiffer (*Am. Rev. Tuberc.*, Dec. 1922, ix, 10, p. 938).

These investigators found that codliver oils have a "definite inhibitory and bactericidal action on virulent tubercle bacilli; cottonseed oil, used for control, has not inhibited the growth of the bacilli to the same marked degree, and has shown no bactericidal action; tubercle bacilli cultivated on cottonseed oil media for six weeks were able to grow and produce tuberculosis (in guinea pigs), whereas tubercle bacilli cultivated on codliver oil media for the same length of time were not able to grow when transplanted or to produce tuberculosis."

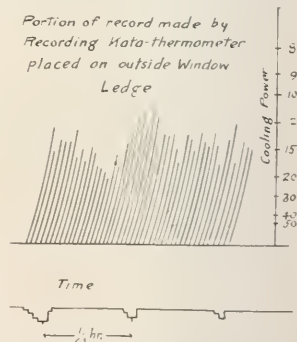
Codliver oil also inhibited the

growth of a *lepra* bacillus, an avirulent tubercle bacillus, and *B. typhosus*. Aqueous extracts of codlivers showed neither inhibitory nor bactericidal action. After contact with codliver oil "the granulation and granular appearance of tubercle bacilli and allied bacteria" was increased. Similar changes have before been noted in the bacilli from sputum of patients treated with sodium morrhuate.

The oil extracted with as little heat as possible and not refined in any way, seemed to have a more potent action than commercially refined oil or oil extracted by heat.

Recording Kata-thermometer

A recording Kata-thermometer which produces continuous records has been devised by Dr. Schuster of the British National Institute for Medical Research. If sufficient orders are obtained, the Oxford Scientific Instrument Company will undertake its manufacture. The accompanying illustration shows the nature of a record made on an outside window ledge.



The Kata-thermometer recently devised makes a continuous and easily observed graphic record. Part of record made on an outside window ledge.

The rapid fluctuations in the cooling power of outdoor air are highly significant. According to the New York State Commission on Ventilation such small fluctuations, from minute to minute, are an important factor in making window ventilation more pleasing than the uniform conditions prevailing under the use of mechanical ventilation.

This new conception of ventilating that requires new instruments for continuous observation and permanent record of fluctuating conditions is met by the apparatus described.

Influence of Alcohol on Progress of Pneumonia

To determine what influence the use of alcohol might have on the death rate, 3,422 cases of lobar pneumonia occurring during eight years at the Cook County (Illinois) Hospital were studied by Capps and Coleman, (*Journal A. M. A.*, March 17, 1923, 80, 11). It was found that the mortality was considerably higher in moderate users than in light users or abstainers, and that the mortality in excessive users was much higher than in moderate users. The average age of the moderate group was about five years greater than that of the abstainers or light users, and the average age of the excessive group was three years more than the moderate. The maximum range between the first and third group was eight years. This would, therefore, explain a certain increase of mortality in the second and third groups over that in the first group. To eliminate the age factor entirely from the problem, the mortality rate was reckoned separately in each group by decades. A comparison of the death rate in the same decades of the three groups shows a remarkable increase of the moderate users over the light users or abstainers, and a still greater increase of the excessive users over the moderate. It is impossible to calculate the effect of legislative prohibition, but in recent years there has been an increase in the proportion of abstainers or light users, and a corresponding decrease in the number of excessive drinkers. The practical disappearance of delirium tremens in recent years, as compared with its frequency before prohibition, also bears testimony to a lowered rate of alcohol consumption. It is the authors' belief that it may be properly concluded that if all these patients had been restricted to abstinence or to the light use of alcohol, 439 patients who died would have been saved.

Schaefer Prone Pressure for Resuscitation

Report II of the Commission on Resuscitation from Carbon Monoxid Asphyxia (*J. Indust. Hyg.*, March, 1923, *iv*, 11, p. 463) shows that no evidence has been obtained from representative gas companies that either the lung-motor or the pulmotor is superior to the manual prone pressure method of artificial respiration, while the evidence from hospitals indicate that any method that drives air by positive pressure into the lungs may be a source of danger. Further investiga-

tions are under way. At present the best procedure consists of immediate use of prone pressure in non-breathing cases, supplemented as soon as possible by oxygen carbon-dioxid inhalations given through a suitable inhaling device.

Diphtheria Prevention in Boston

Progress on the Schick testing and toxin-antitoxin activities of the Boston Health Department reported by Ceconi (*Boston M. & S. J.*, Jan. 25, 1923, 188, 4) show 24,458 individuals tested. Fifty-two and seven-tenths of the Schick tests indicated susceptibility; 47.2 per cent revealed immunity; and 19.7 gave the pseudo-reaction showing protein sensitiveness.

Re-Schicking a group of 261 positive reactors gave fourteen positives showing an immunity of 96.9 per cent six months after the administration of toxin-antitoxin.

Out of 1,663 cultures from the noses and throats of positive reactors, 103 or 6.2 per cent were positive and all non-virulent. A thousand cultures from negative reactors gave fifty-seven or 5.7 per cent positive and all likewise non-virulent.

Eaton (*loc.cit.*) states that in the North End, where living conditions are crowded, only 15.2 per cent out of 591 children tested were susceptible, whereas in Jamaica Plain, Allston, Brighton, and Roslindale 72 per cent of the 1,957 tested were susceptible to diphtheria. There is a high percentage of immunity among Italian children no matter where they live. Another observation of interest is that familial tendencies are not uncommon.

Botulism in Scotland

An outbreak of botulism occurred at the Loch Maree Hotel in August, 1922. Though the details were widely reported in the newspapers at that time, Monro and Knox have thought it well to have an exact account in the medical literature of this outbreak, the first of its kind known to have occurred in Britain.

Eight individuals, six guests and two gillies, were taken ill and all died. The shortest incubation period was fourteen hours and the longest was forty-three, but may have been less as the gillies probably ate the infected food some hours later than the guests. The longest period of survival was six and a quarter days and the shortest fifteen to seventeen hours. Sandwiches made of potted wild duck

were apparently responsible. Some individuals ate the sandwiches and were not ill. This was probably due to the fact that two pots of the duck were used. The histological findings from the examination of a part of the brain of one of the victims were in accord with the diagnosis of botulism, and *B. botulinus* and its toxin were found in the remains of one of the pots of wild duck paste. (*Brit. M. J.*, Feb. 17, 1923, 3242, p. 279.)

Relation of Acidity to Intestinal Bacteria

Two explanations have been proposed in accounting for the facts that animal protein diet encourages the growth of proteolytic types of organisms in the intestine while the addition of lactose or dextrin stimulates the development of the aciduric forms. One of these explanations assumes that the carbohydrate offers a readily available source of energy for both types and as a result fermentation instead of proteolysis occurs. At the same time acid is produced which tends to make the environment unfavorable for the proteolytic types. The other view assumes that acidity plays no part in the elimination of the proteolytic types.

Cannon and McNease (*J. Infect. Dis.*, March, 1923, *xxvii*, 3, p. 175) have conducted feeding experiments with rats, killing them after some days, determining the hydrogen-ion concentration of the caecum and lower colon, and making microscopic and cultural examinations of the contents of the intestine. With high animal protein diet the acidity of both caecum and colon is pH 7.0 to 7.1, whereas the addition of lactose to the diet may produce a pH of 4.6 in the caecum and 6.2 in the lower colon. The conversion of the intestinal flora varied with the acidity. With an increase of acidity the gas producing proteolytic types are replaced by the aciduric. Determination of the acidity of the feces is of slight value in interpreting the acidity of the intestinal contents higher up.

Blood Destruction in Exercise

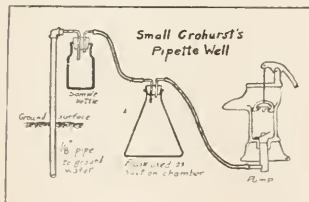
Broun has demonstrated (*J. Exper. M.*, Jan. 1, 1923, *xxvii*, 1, p. 113) "a great decrease in total circulating hemoglobin and red cell volume in dogs, long maintained under sedentary conditions, when they are exercised vigorously during several consecutive days. This seems to be consequent on increased blood destruction, unrepaired for the time being."

Infant mortality in Bombay during the year 1921 was 666 per 1,000 births. (*Lancet*, March 10, 1923, 1, 5193, p. 505.)

Sterile Underground Water Samples

The problem of obtaining samples of underground water by a technic that is surgically aseptic has been simplified by H. R. Crohurst. (*Trans. 20th Annual Conf. State and Territorial Health Officers with the U. S. P. H. S.*, P. H. Bull. No. 128, Dec. 1922.)

As shown in the accompanying diagram the sampling well consists of a one-eighth inch pipe of the desired length with a copper screen at the lower end and an elbow with a screw plug at the upper end. A hole is sunk in the ground by means of a one-eighth inch pipe having a point screwed on the lower end, or if the resistance is great a solid iron bar may be used. This plunger is then cautiously withdrawn and the well pipe inserted. The inside of this pipe can be chemically sterilized in the laboratory and the outside can be flame-sterilized in the field with a plumber's torch. If the screen becomes plugged an automobile tire pump attached to the upper end of the pipe will free the screen.



A device which simplifies the task of obtaining samples of underground water under surgically aseptic conditions.

A pitcher pump is used to draw the samples. On the bottom of this is a short blind pipe to hold the priming water. This pipe is tapped laterally by a line which exhausts a suction flask which in turn exhausts the sample bottle connected to the top of the well pipe.

Under favorable circumstances two men have demonstrated that it is possible to install twenty-one of these wells in about an hour.

A larger type consists of a one and one-quarter inch pipe having a check valve at the top and a reservoir above the valve. The pump exhaust directly from the reservoir from which samples are then removed through a one-eighth inch stop-cock.

Value of Existing Cancer Statistics

Among 3,712 necropsies reviewed by Wells, (*Journal A. M. A.*, March 17, 1923, 80, 11) there were 545 cases of malignant disease, or 14.7 per cent. These figures cover all forms of malignant tumor, including cerebral gliomas and endotheliomas. The summary of these records in respect to the question, How many cancers are recorded in the vital statistics that would have been omitted but for necropsy? shows that 367 cases were correctly diagnosed as malignant tumors and 178 cases were not recognized as malignant tumors. In thirty-three cases cancer was diagnosed as present when no malignancy was found at necropsy. In 578 cases (367, correct; 178, omissions, and thirty-three, erroneously called cancer), there were 211 incorrect diagnoses, or a diagnostic error of 36.5 per cent. Eighty-two external tumors were correctly diagnosed and ten external tumors were not recognized. Two hundred and eighty-five internal tumors were correctly diagnosed, and 168 internal tumors were not recognized. These figures indicate that, as is to be expected, few of the errors are made with external tumors. The error in diagnosis of internal tumors, 37.1 per cent, was almost exactly the same as that reported for inaccessible tumors in the London hospitals, 37.3 per cent. Primary carcinoma of the liver and lung most often escaped recognition. The sort of errors in diagnosis varied with the site of each tumor. The commonest erroneous diagnoses were: cirrhosis, twenty-one; pulmonary tuberculosis, eighteen; heart disease, usually myocarditis, eleven; pneumonia, seven; nephritis, six; jaundice, six; paresis, six; generalized tuberculosis, five. A study of the distribution of all the tumors reveals, first, the great predominance of tumors of the alimentary system, which constitute more than half of all the cases. Wells states that this study shows emphatically the lack of value of all recorded vital statistics on cancer; that at the present time there are no reliable statistics relative to the frequency of cancer as a cause of death. The futility of attempting to learn anything concerning heredity from such statistics is even more glaringly apparent. A single error in diagnosis may lead to entirely erroneous conclusions in the study of the influence of heredity on cancer in a given family. Such accuracy is obviously not present in any existing study of human heredity in respect to cancer.

Sewage Disposal at Trenton

A recent report on sewage disposal of the city of Trenton, N. J. by George A. Johnson, strongly recommends the so-called direct oxidation process for the treatment of the sewage of Trenton. According to Mr. Johnson's estimates the process would cost about the same as an Imhoff tank sprinkling filter plant and would be slightly cheaper than an activated sludge plant and is preferred to the sprinkling filter installation on the ground of nuisance. The direct oxidation process has been editorially discussed in THE NATION'S HEALTH (November, 1922).

Stability of Vitamin Content of Cod Liver Oil

An abstract of an article by Poulsen in *Norcks. Mag. for Laegevidenskaben*, January, 1923, p. 35, (*Brit. M. J.*, March 3, 1923, 3244) states that heating cod liver oil for sixteen hours at 98 degrees centigrade leaves the vitamin content of the oil practically unchanged. Bubbling air through the oil destroys the vitamins in a few hours. Exposure to air at ordinary temperatures is also injurious; a thin layer of oil poured on a glass plate was inert after fourteen days. Time alone has little effect as is shown by the fact that one of the most potent samples examined had been bottled for three years. Emulsified forms of the oil expose more surface to possible air contamination and for the chance for vitamin loss is increased. The liver of the male cod is found to contain more oil than that of the female. The liver oil of certain other fishes was also found to be as rich in vitamin A as is cod liver oil.

The author cited a case showing the benefit to be derived from giving cod liver oil to a nursing mother.

Syphilis in Industrial Disablement

The cost of syphilis to industry and the attendant danger to the travelling public are shown in an analysis of 291 physical surveys of railroad employees made by Edmunds (*J. Indust. Hyg.*, Jan. 1923, IV, 9, p. 380.) The diagnosis of syphilis was based on the physical findings, blood and spinal fluid, Wassermann test. There were 291 surveys made and the blood was examined in 223 cases, of which 187 gave a negative reaction and 35 a positive. Of the total number of patients, 291, 12 per cent had syphilis.

Of the 222 cases in which Wassermann test was made, 15 per cent gave positive results. In the 35 cases of these were 32 positive blood Wassermann's and 3 negative with positive spinal fluid. There were 14 positive spinal fluids and 2 negative; in 19 cases the spinal fluid was not obtained. In 11 cases both blood and spinal fluid were positive. Twelve patients gave a definite history of syphilis. Nineteen had definite cerebrospinal syphilis; of this number, 14 were trainmen and had to do with the operation of trains. Of the 35 patients with syphilis, 15 are now permanently disabled; and 4 are dead. The total amount of time lost by these 35 employees up to May 1, 1921 was 13,946 days. The largest number of days lost by one person was 2,003, the smallest 30, the average being 410. The cost to the relief department for the same period was \$25,296, the cost to the company as compensation, \$25,415.00, a total of \$50,711.00.

Syphilitic trainmen with an invasion of the central nervous system are inclined to take chances with the public placed in their care. They are liable to attacks of unconsciousness, of uncertain memory, of defective judgment, and to ideas of grandeur. The cases cited are convincing, for example, a telegraph operator who could not copy a message correctly and an engineer who ran by a signal and caused a collision.

Ascertaining Splenic Index from School Children

Darling, (*Journal A. M. A., March 17, 1923, 80, 11*) emphasizes that schoolchildren can be utilized by the epidemiologist and the health officer not only in estimating the amount of malaria in a community, but also, at times, in revealing the source of the anophelines responsible for their infection. He reports the result of a survey of a Brazilian village. Sixty-six of 150 children had an enlarged spleen. In most instances the spleen was not greatly enlarged, being "palpable" or "one finger's breadth" in size. Blood specimens were not taken from every child, but only from representative age and sex groups. Half the children from whom blood specimens were taken had positive spleens. The plasmodium was nearly always that of tertian malaria. Of the fifty-seven children who lived in the lower half of the town toward the river, forty-two, or 73.7 per cent had palpable spleens, while of the ninety-three children who lived in the upper part of the town and beyond, only

twenty-four, or 25.8 per cent had palpable spleens. This pointed unmistakably to the river margin, as the principal if not the sole focus of the malaria in the locality, and it appeared to eliminate the stream which ran through the village, as well as any possible place farther away from the river, as being of any real importance in contributing to the malaria of the community. Many propagation areas were found in the low places between the river and the town, along the flood plain and in the borrow-pits and ditches near the tile works. Here larvae of *Anopheles argyritarsis*, *A. tarsimaculata* and *A. albinus*, well known carriers of malaria, were found in great abundance. Fewer were found across the river. The larval survey confirmed the indications obtained from spleen examinations, since the propagation areas were found to coincide with the areas near the homes of the malaria-infected children.

The Treatment of Pertussis With X-Rays

Realizing that x-rays were often used empirically Bowditch and Leonard were prompted to try them in the treatment of twenty-six cases of active pertussis (*Boston M. & S. J., March 8, 1923, 188, 16, p. 317*). They have felt warranted in classifying a small percentage as prompt cures, the bulk as relieved, and 10-15 per cent as not relieved. They think it unlikely that there is any bactericidal action but believe that their brief test warrants a more exhaustive study and bacteriological investigation to be carried on in some institution.

Intracutaneous Test for Immunity to Diphtheria

The Kellogg test consists in the injection into the skin of a white guinea-pig of a mixture of equal parts of blood serum from the person tested and a toxin dilution containing one-thirtieth of the L + dose per cubic centimeter. If the patient's serum contains exactly 1/300 unit of antitoxin for each cubic centimeter (the amount stated by Schick as being protective), 0.1 c.c. will contain 1/300 unit of antitoxin. Two-tenths cubic centimeter of the mixture of serum and toxin will, therefore, contain 1/300 unit of antitoxin and 1/300 L + dose of toxin. The combining ratio of these substances is such that there will be free in the mixture 1/300 minimal lethal dose of toxin, which is just sufficient to produce redness without necrosis in

the skin of the guinea-pig. This degree of reaction, as also anything less, constitutes a negative result and indicates immunity. Tests were applied by Kellogg, (*Journal A. M. A., March 17, 1923, 80, 11*), in combination with the Schick test, on 160 persons, in four different groups, each group being tested at one time by the two methods. With two exceptions, the Schick test and the Kellogg test in this entire series of 160 persons tested have agreed so far as uncomplicated Schick tests were concerned. Kellogg is convinced that the Kellogg test is conclusive as showing either the presence or the absence of immunity to diphtheria. Controls are possible which guard against deteriorated toxin and false negative reactions. False negative reactions with the technic described are believed to be an impossibility. Protein reactions do not occur. The test is a central laboratory one, relieving the physician of the responsibility for the interpretation of the doubtful reactions so frequently observed in the Schick test. The test is the one of choice for practitioners having occasion to test a few persons at a time. The disadvantage of the Schick test, under such circumstances, is that no control against false negatives from deteriorated toxin exists. The test is not recommended as a substitute for the Schick test, when large groups are being examined, for the reason that the collection of a large number of blood specimens would be too time consuming, excepting with adults and older children with whom venipuncture can be used.

Neonatal Mortality

According to Levy, a consideration of the statistics of New Jersey by counties shows that those with less than 6 per cent of their births attended by midwives have a neonatal mortality rate ranging from 32 to 54 per 1,000 live births while those with 23 to 43 per cent of their births attended by midwives have a neonatal mortality rate from 29 to 42.

Among primipara the puerperal death rate is lower among women attended by midwives. (*Am. J. Pub. Health, xiii, 2, February, 1923.*)

As a result of the free scheme of annual medical inspection and examination at Framingham, ten thousand out of a population of sixteen thousand have already presented themselves for advice. Sir Arthur Newsholme calls this "a practical and exemplary method of life saving." (*Lancet, ii, 5183, p. 1409, Dec. 30, 1922.*)

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The Reorganization of the Federal Health Service

THE creation of a department of public welfare in the Federal Government was perhaps the most outstanding concrete plank in the pre-election platform of President Harding. A tentative attempt was made to carry out this plan by the introduction of two senate bills in 1921 and the whole matter has been re-opened as the result of a conference held in the office of Brigadier-General Sawyer in January, from which there has emanated a new reorganization plan. The present project would create a department of education and welfare, including four bureaus devoted respectively to education, public health, social service, and the work of the present Veterans' Bureau.

The plan for the new department has aroused vigorous opposition in many quarters and appears to lack the active and enthusiastic support of any of the agencies involved. The teaching profession will not be satisfied with anything less than a Secretary of Education and many of the departments affected see a serious menace to their efficiency in the proposed agglomeration. From the health standpoint, while it would be more logical for the Public Health Service to be included in a

department of education and welfare than in the treasury department as is the case under the present organization, this advantage is overbalanced by the very real danger that a reorganization might interfere with the high standards of the present service, which, in defiance of logic, has always received the intelligent support of the various secretaries of the treasury.

There is an old saying that one cannot make an omelet without breaking some eggs, but in the present instance the omelet seems a somewhat unsavory one, and there are some very valuable eggs which we should be sorry to see broken. The counselors sought by the President in regard to this matter have been by no means representative of the public health profession, and it is perhaps this fact above all others which makes one fearful of any plan carried out under such doubtful auspices. The U. S. Public Health Service as it stands today is an organization of which the nation may be proud, ranking with the national health service of any country in the world. Until a reorganization plan is prepared with the co-operation of those who really understand the situation, the representative public health workers of the country, it will be far better to "bear those ills we have than fly to others that we know not of."

Conditions Affecting Child Health in the Sunny South

NO ONE who has recently visited the southern states and studied their health conditions at first hand can doubt that state and local health authorities are now facing peculiarly difficult problems. Of outstanding importance are certain problems of maternity and child health which northern and western sections of the country understand and appreciate but little. It is, of course, generally recognized that the social, economic, and sanitary status of the negro complicates the situation. It is known that the infant mortality and tuberculosis rates among negroes are exceptionally high. It is stated offhand that rickets is very prevalent in negro children, that gastro-intestinal diseases abound; and that syphilis also is thought to be widespread among negroes.

Very few careful studies have been made of negro children in the South to determine just what the conditions really are. Recently a thorough examination was given to about five hundred negro children by physicians¹ in one of the large manufacturing centers in Alabama. The conclusions reached from this study demand earnest consideration. It is stated that (1) "the number of negro mothers unable to nurse their infants is rapidly increasing; (2) malnutrition is universal among artificially fed negro infants," and is quite prevalent among negroes between the first and second year, and common among older negro children. No mention is made in this study of the prevalence of syphilis. We have figures from the Johns Hopkins Maternity Service which reveal a very high percentage of syphilis among the negro mothers coming to that clinic; and the systematic treatment of these mothers with salvarsan has served to reduce materially the number of syphilitic infants.

The congenial environment of the South should contribute to a healthy and happy childhood. The large amount of sunshine, the moderate climate, the abundance of fresh fruits and vegetables (in certain sections) and the outdoor life are all conducive to good health. To offset this, however, the housing in many places is very bad, especially in the rural districts; and crowding in the individual cabins marked. Instead of mothers feeding babies at the breast, as they are undoubtedly capable of doing with proper encouragement, the babies are often put upon patent foods or starchy diets at an early age. By the end of the first year the robust health which they enjoyed during the early months, while on the breast, has been de-

pleted. There is a noticeable lack of good dairy herds throughout large sections of the South and the price of cow's milk is exceptionally high. Here is an opportunity for much educational work. It would be of great economic as well as health value to the South to increase the number of milk cows and encourage the people to use more dairy products.

The midwife situation is notoriously bad. In Louisiana 50 per cent of the births are attended by midwives—of this number, excluding New Orleans, 82 per cent are negroes. Most of these midwives are untrained, ignorant, careless, and filthy; and the results of their work are seen in the increased number of deaths of mothers and of infants in the early months of life. The checking up of all midwives and their careful supervision by the state departments of health would be a highly salutary measure.

The solution of the problems of the South must be sought chiefly by the South itself. There is a very encouraging movement everywhere to correct such unwholesome conditions as have been described. Public opinion in the South is alive to the importance of health and understands that no people can live half healthy and half sick without influence one upon the other. One way to approach the problem would be to secure better training of colored physicians and nurses along maternity and child hygiene lines. The employment of a larger number of trained negro public health nurses would do much to solve some of the rural, as well as the city problems.

One of the fundamental necessities is to encourage the negroes themselves to build better houses and to demand better housing conditions in their rented places. An admirable point of attack would be the training of young men and women in the normal schools and institutes in suitable methods of health education. This could be very easily done by introducing courses in child care through the home economic departments. It has already been demonstrated in several places that under favorable economic and sanitary conditions it is possible to reduce considerably the infant mortality among negroes. One of the largest negro life insurance companies now employing public health nurses in the South states that in their experience mortality among children and adults has decreased notably during recent years.

Problems of malaria and hookworm control will continue for some time to command the attention of health officials in the South. There should be coupled with such sanitary measures a public health service for mothers and children which will assure them a sunny motherhood and childhood.

1. The Problem of the Negro Child, by J. Ross Snyder, Southern Medical Journal, January, 1923, pp. 8-11.

Old and New Hazards of Water Supply

A RECENT bulletin of the New York State Department of Health reports more than one thousand cases of mild water-borne diseases (to be followed very probably by typhoid fever at a later date) resulting from the action of the water commissioner of the town (a well-known health resort) in drawing an emergency supply under conditions of water shortage from a polluted lake. Such misguided action with its resulting dangers to the health of the community as a whole is familiar enough in the history of public water supplies, but it will be made less frequent in the future if passage is secured for a bill introduced at the instance of the Department into the New York State Legislature, making local health officers ex-officio members of local water boards so that they may be fully informed as to any proposed action in the direction of a change in supply.

The same episode discloses a new hazard relating to water supply sanitation, a hazard involving the health department engineer. In the course of installing an emergency chlorin apparatus the engineer of the state department was badly burned about the face with chlorin gas as a result of a break in a connecting tube of the apparatus. So far as we are aware this is the first case of the kind to be reported but it suggests the desirability of supplying engineers employed in such tasks with a gas mask for use when necessary.

Healthy Skepticism—Dogmas Fall Before Courageous Inquiry

THE sanitarian who thinks for himself, who is unwilling to accept without question dogmas which by reason of age and repetition have secured general belief, who maintains that judicial mental attitude which arraigns the tenets of our sanitary faith before the bar of fact and reason, finds himself in many quandaries.

There is a certain fascination about platitudinous catch-words and it is of course much easier to accept ready-made epidemiological creeds than to sort out the false from the true; but it is only through a thoroughgoing skepticism that sanitary medicine will advance. There is a healthy humility which comes from finding out just what we do not know and in discovering how incomplete is that which we think we know. The courage which is required ruthlessly to drag our cherished doctrines into the pitiless light of day is a builder of scientific character, a stimulant to research, a

creator of a wholesome incredulity which will not accept theories as truths and unproved presumptions as facts.

And this is not remarkable when the history of the evolution of hygiene is considered. Time and again time-honored beliefs which were apparently well proved have been swept aside by the discovery of a simple scientific fact, and on many occasions campaigns for the eradication of a disease have been conducted on lines which seemed justified by the results achieved, later shown to have been entirely incorrect. Even when the first application of a newly found fact is viewed in retrospect, it is usually seen that much unnecessary labor was performed and considerable amounts of public money uselessly expended in doing needless things. There is a constant simplification of the processes of disease control, but it is only by seeking to differentiate accurately between the actual and apparent causes of these results that progress comes.

Our successors are going to be astonished at how well we have managed in the control of diseases about which our knowledge is so pitifully imperfect. We now accomplish results by roundabout methods which they will reach directly. We are still in the blunderbuss stage so far as many diseases are concerned and are obliged to shoot a scatter target in order to hit the bull's eye. They will be able to use a weapon of precision in a greater number of diseases than do we because they will know many things which we do not.

Probably more research has been devoted to tuberculosis than to any other disease of man, yet do we know definitely just how the disease is usually spread, how the causative organism usually enters the body, whether or not its appearance in adults is a recrudescence of childhood infection or a re-infection or an infection *de novo*? We have been taught to consider the fly as dangerous as a cobra but do we know, have we really proved for all time that it does the amount of damage with which it is ordinarily accredited? What do we really know about the causes of the seasonal prevalence of disease, why is one a cold-weather and another a warm-weather infection? Have we determined beyond question the causative micro-organisms of small-pox, chicken-pox, scarlet fever and measles, diseases which in the sum total of their effects are so serious? Do we know what is the exact mechanism of their spread? Can we determine that a given person is immune to any one of them, except small-pox, or can we artificially immunize large groups against them? Do we know certainly that trachoma is an infectious disease? Have we settled forever whether there is a relationship between yellow fever, dengue, and ictero-hemorrhagic fever?

The list of our ignorances and half truths is appalling, yet when we compare these debits with what we have put on the credit side of the ledger of sanitary knowledge in the past half century, we have reason to take hope. We have, so to speak, barely crossed the threshold of understanding and have opened only a few of the closed vaults of knowledge. One by one keys are laboriously being made to open them and each fact secured makes easier the getting of the next. Never will we have them all but by incessant work and the cultivation of a healthy spirit of doubt, the sum total will be augmented and human life and usefulness made more secure. In the meantime we must use stone axes until we get bronze ones and bronze until we discover steel, protecting, prolonging, and upbuilding the existence of man.

Tuberculosis in Cook County

AN ASTONISHING circular letter was sent out under date of March 20, 1923, signed by Mr. Edgar A. Jonas, president of the Board of Directors of the Municipal Tuberculosis Sanatorium of Chicago and addressed to the physicians of the county. "This letter," it is stated, "is to notify you that on and after April 1, 1923, the coroner of Cook County will not permit the Vital Statistics Department of the Health Department to issue burial permits for persons reported as having died of tuberculosis who had not been previously reported as cases of tuberculosis. The Cook County coroner will make a thorough investigation of all such cases, in order to ascertain and establish the cause of death." The declared purpose of this regulation is to secure more general reporting of cases and to prevent physicians from assuming responsibility for cases treated by irregular practitioners up to the period immediately before death. On the other hand, it seems obvious that such a drastic regulation is likely to produce a wholly artificial decline in the recorded death rate from tuberculosis. It is highly desirable that this disease should be detected and reported in its early stages but faulty morbidity statistics will not be remedied by faulty mortality statistics. It has been claimed even in the past that Chicago tuberculosis rates are markedly influenced by the transfer of moribund cases to sanatoriums outside of Cook County. The present regulation will not only stimulate this practice but is likely to lead to the reporting in any cases where the slightest doubt exists of causes other than tuberculosis by both physicians and coroner. Somewhat similar procedures adopted in regard to typhoid fever have in the past aroused grave

suspicion in regard to the vital statistics of Chicago and it is unfortunate that the really admirable program of the Municipal Tuberculosis Sanatorium should be marred by the policy now promulgated.

Cycles of Pandemic Influenza

AN IMPORTANT contribution to the history of pandemic influenza has been made in the study by Eichel¹ of the cycles of this disease as indicated by approximate statistics extending back to the year 1500. Dr. Eichel is one of those who holds to the view that interepidemic influenza is essentially identical with the pandemic disease and he comes to the exceedingly disturbing conclusion that its pandemic cycles are progressively shortening with the passage of the centuries. The five major pandemics are indicated by his analyses beginning respectively in 1557, in 1729, in 1824, and in 1889 and in 1915. The corresponding intervals between these pandemics, it will be noted, are 172, 95, 65 and 26 years respectively. If the tendency to a shortening of the interepidemic period is a continuing one we may well hope that the investigations recently reported from the Rockefeller Institute may open the way to a more effective control of this disease than has been possible in the past.

Health Work of the League of Nations

GRATIFYING progress was manifested at the fifth session of the Health Committee of the League of Nations² held at Geneva early in January. The most important matter discussed was perhaps the interchange of sanitary personnel, the first two courses having been held with great success in Belgium and in Italy during the months of November and December. The development of systematic epidemiological intelligence and international health statistics now, thanks to the generosity of the Rockefeller Foundation, under the direction of Mr. Edgar Sydenstricker, is rapidly going forward. It is interesting to note, too, that the committee has found it possible to further its work of health education and at the same time to aid the Museum of Health at Dresden, which is so much in need of assistance, by purchasing a considerable set of models from this institution.

Another matter of great importance was the report of the Second International Conference on the standardization of sera which was held in Paris in November. This conference has given

1. Eichel, Otto R. The Long-Time Cycles of Pandemic Influenza. *Journal of the American Statistical Association*, Dec., 1922, Vol. xviii, p. 446.

2. League of Nations, Health Committee. Minutes of the Fifth Session. Held at Geneva, January 8 to 13, 1923.

us' at last a definitive international standard for dysentery antitoxin, has adopted in principle an international unit for tetanus serum and has provided for a systematic cooperative study of anti-meningococcic sera, anti-pneumococcic sera, antidiphtheritic sera and methods for the diagnosis of syphilis, which promises to prove of the greatest value to laboratory workers all over the world.

It is particularly interesting to note how an interest in the common tasks of science tends to break down unfortunate artificial barriers. Although neither the United States nor Russia are members of the League of Nations, arrangements have been made by which Surgeon General Cumming can sit with the Health Committee of the League in an advisory capacity and the Soviet Commissariat for public health sat with the Health Committee of the League of Nations at its general session and gave invaluable aid in estimating the health situation in eastern Europe.

Mental Hygiene and Accident Prevention

INDUSTRIAL physicians, safety engineers, and personnel workers who have carried engineering revision to the maximum point of development and still find that accidents continue, will welcome a recent book¹ which opens up a whole new field for their consideration. Mr. Boyd Fisher points out that we ought to consider a poorly equipped mind as a misguided machine and adds: "It is time that we took a hint from the progress which has been made in dealing with other forms of social defect and treated accidents not as delinquencies but as forms of mental error." He attempts in this work a preliminary analysis of the psychological factors in industrial accidents and enumerates fifteen such major causes, grouped under the major heads of ignorance, predispositions, inattention, preoccupation, and depression. Particularly suggestive is his development of the idea that lack of interest in the job is a fertile source of accidents, so that anything which helps to build up a positive interest in the work will prove a factor in accident prevention. The part played by external distractions due to physical disorder or lack of effective factory management is wisely stressed and the student of fatigue will find the discussion of this subject highly suggestive. Although it seems unnecessary to quarrel over the question whether anything but "complete exhaustion following exertion when all further normal stimulation is futile" can be called fatigue, the

fatigue recorded in diminished production and increased accident rate toward the end of the shift is something very real even if it can be overcome by appropriate stimulation.

After an exhaustive analysis of the psychological causes of accidents Mr. Fisher discusses accident hygiene, the logical step beyond accident prevention just as in broader community relations personal hygiene has grown out of public sanitation. Intelligent selection of workers including careful tests of sense organs and as much information as possible in regard to general mental equipment is the first avenue of approach toward control. Next, obviously, is the education of the worker and in regard to this point the author emphasizes the need for individual instruction in place of the repetition of slogans which after a time "have no more weight than do the prayers which Mohammedans in India print on long strips of paper and wind up on a wheel in lieu of reciting them."

Finally and most important of all is the question of "personal audit and adjustment," and "a mental post mortem on every accident case that actually occurs."

Mr. Fisher's book is not always easy reading and his classifications as he himself says are tentative. They will no doubt be subject to criticisms from other psychologists and will be substantially revised in the future. The author has, however, as it seems to us, opened up a field of enormous breadth and significance in a way which should prove most stimulating to everyone interested in the problems of industrial health and efficiency.

Improvements Recently Reported in Sludge Handling

THE bane of the sewage works operator is sludge disposal and for many years it has been clear that the vital need in this branch of sanitary science was the need for more economical processes of dewatering sludge. That such improvements will some day be accomplished has seemed reasonably certain and the favorable results reported from Milwaukee encourage us to hope that substantial progress is actually being made. The chemists and engineers in charge of the sewage disposal experiments of that city report that activated sludge can be dewatered by the use of acid heat flotation followed by the use of the Oliver screen with economy and efficiency and these claims will be eagerly examined and tested all over the United States. It is gratifying to see that the fundamental physical-chemical problems underlying sludge dewatering are at last receiving the study which they deserve.

1. League of Nations, Second International Conference on the Standardization of Sera and Serological Tests, November 20 to 26, 1922, at the Pasteur Institute, Paris.

2. Fisher, Boyd. *Mental Causes of Accidents*. Houghton Mifflin Company, 1922.

HEALTH IN INDUSTRY

*Problems Concerning Factory Sanitation,
Industrial Medicine, and the Health and
Efficiency of the Industrial Worker*

New Jersey Industrial Safety Museum

**Clearing House for the Standard-
ization of Safety and Sanitation**

BY L. ERSKINE, CURATOR STATE INDUSTRIAL SAFETY MUSEUM, CHIEF OF BUREAU OF INDUSTRIAL STATISTICS, NEW JERSEY DEPARTMENT OF LABOR, JERSEY CITY, N. J.

ON April 21, 1920, Governor Edwards of New Jersey approved "an act to create a state industrial safety under the jurisdiction of the Department of Labor, to further the standardization of safety and economic stability in the manufacturing of the State of New Jersey." This marked the first step in an undertaking that has, in the few years which have since elapsed, undergone a phenomenal development. As an official clearing house for the standardization of accident prevention, fire protection, industrial sanitation, and stabilization of the labor turnover, it stands today as a monument to its originators and developers, and as an example of the aid that a state can render in assisting employers in their compliance with the provisions stipulated in the laws governing factory employment.

By provision of the measure creating it, the museum is required to serve as an official clearing house to coordinate the conservation activities of the Department of Labor, of the compensation, accident, fire, and life insurance companies, and of the public service and railroad carriers operating in the state. While it is, accordingly, primarily concerned with the lessening of industrial injuries, it also covers the field of public and home accidents, and of community hazards. Through the establishment of uniform standards and practices among all agencies which are concern-

ed with the reduction of physical and property waste in New Jersey it has supplanted, by centralization, the needless expense and annoyance arising from the existence of conflicting safety regulations among insurance carriers, rating boards and bureaus of the department.

The Safety Museum is located at 571 Jersey Avenue, Jersey City, in a four story brick and steel building. It contains three large halls devoted to exhibits; offices and conference rooms containing displays of hundreds of photographs of hazardous conditions and safety devices; the Hudson County unit of the Rehabilitation Commission; the Hudson County unit dealing with workmen's compensation; and a public employment office, operating without charge to employer or worker.

The procedure of making the exhibits available and of real benefit to the manufacturers is as follows: The factory inspectors, whose home office is at Trenton, tour the state inspecting all factory buildings that come within the provisions of the statutes. In the survey of some establishments, for example, where there were several unguarded and dangerous pieces of machinery and the washrooms were fitted with antiquated plumbing fixtures that made sanitation impossible, the inspector noting these defects would report the former to the chief of the Bureau of Electrical and Mechanical Equipment, and the latter to

the chief of the Bureau of Hygiene and Sanitation. Each of these bureaus would then issue separate orders, for the correction of the defects, to the official at the factory who was responsible for the improper conditions found to exist. This official is then summoned to the Safety Museum for a conference with the state officials. The dangers of the conditions he has tolerated in his plant are carefully pointed out to him. Then, instead of sending him back to make improvements as he sees fit, he is taken into the exhibit halls and shown the adequate and approved types of guards for the machinery under discussion and modern sanitary equipment of a kind that would change his washrooms from a menace to a positive health asset. After such a demonstration as this is made there is then no excuse if it is found on subsequent inspection of the new installations at the factory that they do not conform to the state regulations. At a conference such as that mentioned above there is an unlimited opportunity for educational work with the employer along many other lines of safety and sanitation. It would be a strange manufacturer who would not be interested enough to spend a little additional time looking at the many exhibits that are on display at the museum. Willingly or unwillingly, intentionally or unintentionally he would get a few new ideas; some stimulation to make his factory a bet-



Shows safety scaffolding used in building operations, with two men at the lever that operates the scaffold. Directly under the scaffold are located a number of pieces of safety equipment.

ter place for the working man; and some idea of the fairness of a policy that demands a change and also shows how the change can be made.

The industrial sanitation exhibit room is wired with six different types of lighting. A switchboard permits ready change from one type to another and a rheostat provides accurate and sensitive control of the intensity. Machinery Hall is equipped with Mazda incandescent and mercury vapor lamps. These industrial lighting units throughout the building demonstrate the practical application of the most modern engineering thought on the subject. They illustrate the most satisfactory and economical methods of providing approved standards of artificial lighting, at once free from objectionable glare and disadvantageous shadows. Various sections of the walls are finished in different colors, permitting a comparison of the auxiliary reflecting service of different colored walls, one color with another and with the contrasting conditions found in industry.

By means of window shades the intensity of natural lighting in the rooms of the museum can be matched to that of any industrial work-room under consideration, and the amount of necessary auxiliary artificial lighting determined. The rooms can be completely darkened for tests of night shift requirements, and by the aid of a photometer, the exact foot-candles required by the lighting code ascertained. The museum's lighting equipment is now one of the most comprehensive in the country.

Nine types of flooring, including various kinds of tile and linoleum composition are employed in the industrial sanitation exhibit hall. A completely equipped model cafeteria sufficient to care for 350 persons; model washroom equipment, including, basins, troughs, lockers, showers and closets; a completely equipped first aid room; and an industrial hospital are some of the other exhibits in this hall. The walls back of each of these displays are painted in colors best adapted for the nature of the work.

The effects of these color schemes can be demonstrated with the aid of the various types of lights and reflectors previously mentioned.

Sixty feet of line shafting in Machinery Hall, in addition to twenty individual motor-driven exhibits, provides facilities for demonstrating approved types of standard safeguards on transmissions apparatus, while a number of metal and wood working machinery units are equipped with point of operation guards. A dust removal system on seven types of wood working machines takes care of the removal of dust and waste material.

An exhibit of standard type steam power equipment, has been prepared under the supervision of the Engineer's License and Steam Boiler Inspection Bureau, that includes among other things a model of a standard type of horizontal fire-tube boiler, a large longitudinal section of the same type, models of proper boiler foundations, portable and steam heating boilers, water gauges, high pressure steam valves, and an improved stop motion on an engine governor. The structural exhibit includes an approved elevator installation, safety scaffolding, ladders, and a portable tower for ceiling repair, the latter fitted with adjusting devices so that it can be used on uneven floors. Space forbids mention of even a small part of the interesting things that one can see at the Safety Museum. Even the sewing machine is there with a properly guarded belt.

The fire prevention display includes, many kinds of fire fighting apparatus, safety storage cans, building material, fire proof windows, doors, and several types of automatic fire alarm signal systems.

On the first floor of the museum is an excellent ventilation exhibit, containing types of sand-blasting rooms and cabinets, exhaust systems for removing dust from machinery used in the manufacture of felt hats, exhaust hoods for grinding and buffing wheels, hoods to remove the fumes from tanks used in electro-plating, and many other pieces of exhaust equipment. When the state orders the installation of an exhaust system for the purpose of minimizing a dust or fume hazard it first shows the manager the proper equipment on his visit to the museum as already described. He is then given specifications for an installation that will be satisfactory to the Department of Labor. These specifications the manager delivers to the contractor that he employs for the work. On its completion the factory

inspectors examine the exhaust system and if it does not comply with the specifications the engineer, very properly, receives no pay for the work. The department not only directs what it wants but it also insures the manufacturer against fraud and aids him in every way to make his factory as safe and hygienic as possible with the knowledge of present day science.

Charts and photographic displays show up-to-date factory buildings erected in New Jersey under the state code, in compliance with the state laws. A valuable collection of photographs, charts, and layouts for practical housing methods in connection with manufacturing plants is available for the employers of the state. The display of structural features arranged by the Bureau of Structural and Fire Protection Inspection will benefit prospective builders of manufacturing plants, as well as those contemplating changes in their present buildings. The bureau is in touch with the leading architects of the different states, and is ready at all times to furnish information regarding proper factory construction and alterations, and the engineer will arrange to go over any preliminary plans at the Museum of Safety before final plans have been drawn.

The stabilizing of the labor turnover by means of betterment provisions, improved employment methods, coordination of the personnel activi-



A general view of one section of Machinery Hall, fourth floor of the museum building. On the right appears a sixty-foot section of line shafting, together with individual belt-driven units safeguarded in accordance with standards of the New Jersey Department of Labor. At the extreme end in the center is a large boiler, weighing eight tons, constructed in accordance with the A. S. of M. E. national code of boiler construction. This room contains twenty-seven motor-driven machine units.

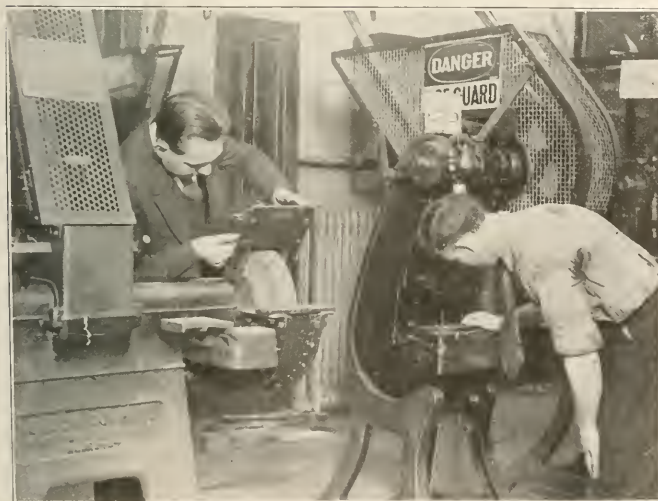
ties, and approved types of safety shop committees are covered by room reserved for the purpose. Group insurance, industrial housing, and community and plant hygiene for the reduction of tuberculosis are also included.

The boiler exhibit in Machinery Hall is used in the practical examination of applicants for engineers' licenses. A museum may mean to some people a place to go on Saturday afternoon for semi-entertainment but the Safety Museum is the home of practical service. There is even an electric floor-scrubbing machine that carries its own water in a tank and rolls around the floor like an overgrown vacuum cleaner.

The photographic exhibits cover many industries that have hazards of various types. Some of the processes covered in the photographic exhibits are laundrying; making of pottery; metal grinding; snuff grinding; printing; and the felt hat industry.

The executive personnel of the Department of Labor of which the museum is a part is under Lewis T. Bryant, Commissioner of Labor, and is composed of: John Roach, deputy commissioner of labor; Charles H. Weeks, deputy commissioner of labor; Rowland H. Leveridge, chief, Bureau of Electrical and Mechanical Equipment; J. F. Scott, chairman, Bureau of Engineers' Licenses; Lillian Erskine, Chief, Bureau of Industrial Statistics; and Wm. E. Stubbs, secretary, Workmen's Compensation Bureau.

The activities of the New Jersey Industrial Safety Museum are under the immediate direction of John Roach,



Shows a solid abrasive wheel used in grinding operations, equipped with a standard type safety hood designed to safeguard the worker in the event of the wheel breaking. On the right a workman rests his hand upon a protective device that guards punch presses. The workman has a long flowing tie that may get caught in the moving parts, which shows that the element of personal care is a matter of serious importance in accident prevention work.



Shows dust and fume removal apparatus used in industry in connection with which the New Jersey Department of Labor has established positive standards of installation and operation. Industrial dust constitutes a menace proved by recent studies to be a more serious affair than mere matters of accident due to unguarded machinery.

Deputy Commissioner of Labor, who has arranged an extensive lecture service on industrial safety including sanitation, accident prevention, the prevention of occupational diseases, and the encouragement of hygienic practices in industry.

This lecture service has required the organization of local Safety Councils in the several industrial areas of the State whose membership is composed of plant engineers, works managers, superintendents and members of safety committees. Safety Councils of this type have been organized in Jersey City, Newark, Camden and Trenton and a regular schedule of lectures on industrial topics has been arranged and carried out. In addition safety meetings are arranged in plants throughout the state and addresses are made to groups of shop employees. Motion pictures are used in all cases in connection with the addresses and it is stated that excellent results have been achieved through the medium of this industrial lecture service.

The Museum is open to the public from 10:30 a. m. to 4:30 p. m., every day in the week except Saturday and Sunday. On the evening of the first and third Fridays of each month an address on safety is given to foremen and safety engineers. This also includes a motion picture.

The fact that the Department of Labor each year serves an average of six thousand orders covering ap-

proximately sixteen thousand items that violate the safety and sanitary conditions of the state is a sufficient reason for the establishment of a museum of this character.

Small Industrial Sewage Treatment Plant

A small industrial sewage treatment plant, constructed for handling the domestic sewage produced by a company at Paterson, N. J., employing a maximum of 420 persons is described in *Municipal and County Engineering* by George L. Robinson. The sewage is purely domestic. There will be no laundries or kitchens and no trade wastes discharging into the sewer.

It is proposed to take the sewage from the building through a six-inch sewer to the treatment plant. This plant consists of the following elements: Gate chamber, settling tanks, and chlorid of lime sterilizing outfit.

The gate chamber is a concrete structure, semicircular in form, provided with two stop planks or gates, set in the invert of the sewer, which will be molded in the concrete floor. These gates are of wood, fitted into a slot moulded in the concrete at right angles to the invert. Easy access to the gates is provided by means of a hinged door in the roof.

The flow of sewage water from the factory may be diverted into either or both units of the settling tanks. When the total population is in the factory each unit is worked six months at a time, the organic matter

standing in one unit and digesting for a period of six months, at which time it can be removed by a hand pump through the cover on the roof. Each tank is 9 ft. long by 6 ft. wide, having a maximum depth of 8 ft. The baffle wall will extend across each tank one foot from the overflow end.

The sterilizing outfit consists of a concrete tank, divided into two parts, each 4 ft. long by 3 ft. wide. The walls are four inches thick, made of concrete mixed with waterproofing. The structure rests on concrete piers, 12x12 inches, at an elevation of three feet above the finished floor. From the bottom of each storage tank extends a brass pipe to an automatic dosing box. This brass pipe is provided with two valves. On the floor in front of the storage tank and directly over the brick well is set an automatic dosing orifice box. A one-inch water pipe is provided to the mixing trough and a piece of hose about two feet long makes it so that water may be distributed into either of the mixing troughs.

The entire structure rests on a concrete floor, and is enclosed in a neat wooden house of suitable dimensions.

The overflow from the settling tank passes through a six inch vitrified pipe and makes connection with the mixing chamber.

Industrial Accidents Tabulated

A convenient compilation of industrial accident statistics has been made by Chaney in the *Monthly Labor Review*, who presents the number of fatal and nonfatal accidents for the various states for the years 1917 to 1921, inclusive. The number of accidents in Pennsylvania are given by industries for the years 1916-1920, number of accidents occurring in Massachusetts during the year ending June 30, 1920, are tabulated by industries and extent of disability and half a dozen of the major industries of the country are then treated in detail.

The total number of fatal and non-fatal accidents as reported by the various states have been as follows:

Year	Fatal	Nonfatal
1917	11,338	1,365,060
1918	12,531	1,345,727
1919	10,806	1,365,520
1920	11,019	1,656,316
1921	9,224	1,317,090

Canada is asking the cooperation of the United States in its drug fight. Officials of the dominion narcotics department will visit Washington for the purpose of formulating some international plan. There are 15,000 known drug addicts in Canada, and evidence of the existence of an international "dope ring" with headquarters in Montreal and operating also in New York and Chicago, has been discovered.

Employees' Attitude Toward Medical Service

By ROBERT E. ANDREWS, M.D., MEDICAL DIRECTOR LUDLOW MANUFACTURING ASSOCIATES, LUDLOW, MASS.

OF ALL the service activities in industrial establishments today, that of the medical department has proved itself the most necessary and important to both employer and employee wherever it has been installed and developed. Medical and surgical work has proved to be the one activity most freely and readily accepted by employees, and against which not even the breath of suspicion of paternalism has been raised.

The physician in industry, through the adaptation of professional service to a special industrial environment, has developed an extremely interesting train of contacts, both with executive procedure, and with the very intimate relations of physician and employee patient.

While many interesting factors have played their part in developing the almost universal support of medical work in industry, that factor of the change of viewpoint toward the work of the physician in industry both by employer and employee is perhaps the most interesting.

In the early development of the medical department in establishments, the idea was not easily sold to the heads of industries. Conservatism fought the initiative of starting a department having no known or tried place in the organization. In addition, there loomed a sizeable overhead for carrying on activity outside of production, which meant spending considerable money, the return for which was intangible and with the further possibility of upsetting existing rules and regulations within the plant. The attitude of their employees loomed large as an uncertain factor which they feared might be antagonistic.

The pioneers who first introduced medical service in industry, held at the start great expectations of positive health, which as the development proceeded, gave way to a realization of its limitations and a recognition of the preventive aspects of the work. It has taken at least ten years even partially to standardize medical and surgical practice and procedure in industry, largely because of the very attitude of mind of the plant executives enumerated above. Step by step, their doubts have proved ungrounded, so that today industry accepts medical service as the most necessary part of service which is established in the plant. Step by step a small outlay

has led to more and more allowance for medical development in every industry that has introduced it, and the ready acceptance of the workers of this branch of service has astonished the heads of many concerns.

It has been scarcely four years since the writer introduced full-time medical service in a large textile industry, but during that time it has been his privilege to observe the changed outlook both of employers and employees toward such service. At the start the proposal to give physical examination to all in-coming employees, met with considerable skepticism on the part of the executive management as to its advisability or

management, it is interesting to note how the employees felt. As was to be expected among unskilled labor, in the majority Polish and Portuguese, there was at first sporadic hesitancy, and here and there a case of mildly passive resistance to examination. The majority, about 75 per cent, were "re-hires," some of them having been re-hired several times over a period of years. The commonest complaint was: "What is the big idea of all this? I've worked here so many years and never had to go through this before. Are they trying to find out something that will keep me from my job."

Here were two problems, unenlightenment and suspicion, which must be immediately and successfully met. The solution was astonishingly simple. Immediate and complete conversion to the idea followed the simple explanation that we wanted to be sure there was nothing in their condition which might hurt them on the job, and that if any physical defects were found, work would be given them where they would not be liable to hurt themselves. Almost invariably the reply was:

"That's a good idea! Why didn't they do this before?"

And right then and there was the psychological moment to explain to them that a physician and nurse were during working hours constantly at their service for consultation and treatment of any conditions that might need attention.

It has been stated that the first impressions are the most lasting, so this first contact with physician and nurse was made as effective as possible through kindly tact and courtesy, in forming in the minds of the prospective employees a favorable impression of the medical service offered them.

If to the many months devoted to special study of industrial medical problems there were added a few more hours of study on the state of mind of sick or injured workers who are about to consult the plant physician, we might hope for fewer occasions of failure. No matter how fine and extensive an equipment, and how elaborate a medical department is built up, if the employees—and they are keen critics—once gain the impression that the physician does not personally throw all his professional interest into their individual case, the medical department is slipping, and slipping



The physician's consulting room where the Ludlow employees are given free diagnosis and advice.

success. It seemed a drastic step, and one that they felt they were not quite ready to undertake and that they felt should not, if tried, be given general publicity among the help until it had been proven acceptable to a considerable number of employees. The argument that it might just as well be tried out then as to wait several months before proving its value, gained assent to its trial with the understanding that nothing be said about it until at least six hundred examinations had been accepted by the help.

After four years of physical examinations of entering employees, this branch of medical activity has proved perhaps the most valuable of all the prevention work developed.

In contrast to the attitude of the



The clinic of the Ludlow Manufacturing Associates has succeeded admirably in inspiring the confidence of the workmen.

badly. The remark that "they wouldn't have that doctor for a sick cat?" has been made on occasion, and it has spelled "FAILURE" in capital letters. We must guard against the possibility of such a mental reaction among the employees.

For the first few months after instituting physical examinations, an annoying condition developed in the experience of the writer. There seemed to be a keen and almost devilish delight on the part of a number of girls, who had been given the limited physical examination, to frighten other girls of their acquaintance, who were about to undergo the mysterious process of a physical rating before starting work. Such remarks as "Oh, you wait till the doctor gets through with you! He won't do a thing to you! Wait till he strips you and lays you out" and other suggestive remarks were planted on fertile soil to develop a crop of absolutely ungrounded fears. So that these new employees appeared positively shaking in their shoes with fear of the great unknown that they expected to pass through in being examined. Just a few kindly words of explanation of the whole idea usually served to quiet everything before proceeding, but the pulse often stayed up as an indication that their nervousness had not entirely disappeared.

This disconcerting and annoying interference introduced in a spirit of fun and suggesting the terrorizing of a neophyte before his initiation, seem-

ed a difficult thing to stop. But as a matter of fact ignoring the practice allowed it to gradually die out. This condition has never reappeared in the writer's experience since physical examinations become a firmly established procedure.

Success in industrial medicine is directly proportionate to our appreciation of the mental state of the sick or injured employee. It is not stating it too strongly when we say that we should treat the head first, then the sick or injured part. Success often lies, not so much in what we do, as in how we do it. For instance to prove the importance of considering the mental state, let us study the train of thought of a sick patient on first consulting the plant physician. A possibly trivial ache or pain while at work becomes through introspection an apparently severe condition. Permission is asked to visit the plant physician. All the way there, the possible seriousness of that pain is mentally augmented, until on appearing before the doctor the sufferer is prepared to be told the worst. Right here, the disregard or ignorance of the mental state of the sufferer could result in a very serious blunder. To a physician not long out of his internship, the evident simplicity and minor seriousness of the case would appeal only as something he could readily relieve. And he is tempted to make light of it in comparison with the many major illnesses which he has been accustomed to study and treat.

The assurance that nothing serious is the matter with the patient is all right in a family of education but among unskilled labor the reaction to such assurance given in an offhand way can be almost fatal to the success of the clinic. The employee returns to work, feeling that the physician does not understand his case and does not know how really serious his condition is. At his work and outside he tells his friends the doctor is no good, etc., thus spreading broadcast the seeds of suspicion and distrust. That these seeds can be developed fast is evidenced by a distinct falling off in the clinic attendance which the physician is unable to comprehend or explain. This is not a theoretical condition of affairs but has actually happened within the writer's observation.

Instead of such a reception, the experienced physician in industry, already aware of the state of mind of a consulting employee, assures the patient that he is showing very good judgment in coming to the medical department early before anything more serious can develop. He follows this up with a painstaking search for any systemic upset as a result of which the employee's mind is much more amenable to the suggestion of a rapid disappearance of symptoms. Where the condition is really trivial, but magnified in the patient's mind, such procedure works like a charm. The worker returns to his job reassured, and feeling way down deep in his mind that this doctor "knows his job" and understands his case.

Similarly, take the case of the injured employee on his way to the clinic for the first dressing. His dominant thought in nine times out of ten is that the machine was to blame for his injury. This is probably a peculiar streak of human nature inherent in all of us to a degree, in an endeavor to persuade ourselves that it is not our own fault when we get hurt, and so we blame the works.

The experienced industrial physician aware of the injured man's line of reasoning, treats the mental state as much as he does the wound. He knows that to argue the cause would be the height of folly in immediately inviting a mental opposition to his personality in his capacity of the plant physician. So he shows a personal interest not in how it happened, so much as in what is the best treatment to command. A courteous interest in the case rapidly dissipates the feeling of "blaming the machine" and creates an interest in what is being done. Not infrequently an x-ray of an injured finger and the showing

of the plate to the patient makes a profound mental impression of how much is being done for him to quicken recovery. This is not unfrequently done in the spirit of treating the head as well as the hand.

Another condition of the patient's mind which is frequently not grasped by the industrial physician is the real feeling behind the title of "Doc" with which we are frequently greeted by employees. We as physicians are prone to resent the term as showing a familiarity and lack of respect out of all proportions with the dignity of the profession. But in industry it stands for a real friendliness and state of mind which means trust in your judgment and in your real regard for the workers' interests.

It is a singular paradox that a very evident modesty among young women before the plant physician is strongest in those least modest in their general behavior.

As a case in point, a physically attractive girl of seventeen years, sustained at her work an abrasion just above the left knee. She firmly refused to allow the plant physician to dress the wound. The nurse who was assisting remarked, after attending the injury, on her seeming modesty. Subsequent history showed that she had been threatened with arrest twice within six months for her relations with young men.

Another case was that of modest-appearing girl who consulted the physician at the plant for a pain in the chest. Yet she positively refused heart and lung examination. She seemed embarrassed and the nurse was unable to persuade her to have her chest examined. Here was another case of seeming modesty, where a further history told of frequently wild night life parties in camp and an illegitimate child.

It has been the writer's experience that downcast eyes and modest tendency to blush means that the whole story has not been told; that they beat about the bush in telling their story usually means that they find difficulty in expressing the object of their visit. They will claim to the plant physician to be suffering from a headache, when in reality they visit him for relief of the cramps of dysmenorrhea.

One learns after considerable experience how much further to extend inquiries as to the upset that brings them to the clinic. An experience of the writer was illuminating. One of the girls, believing herself pregnant, came for advice. Apparently when she had the chance to tell of her trouble, she lost her courage, for her

fictitious symptoms had no bearing on her real condition, and as I learned later, the reason she did not tell me was "I didn't ask her" if she was in a "family way." Since then, it is needless to say, the question has been tactfully put in all suspected cases.

Once the real story is told the sense of relief becomes immediately apparent. The false modesty is transformed on the spot to direct gaze and truthful frankness with an expression of countenance that fairly beams with welcome relief.

A probable explanation of the condition of mind shown in many of these young women is the desire to keep inviolate from medical records in industry any reference to their history outside of their work.

There is another class of employees both men and women, but with the women in the vast majority, who ex-

hibit extreme modesty when abdominal examination is proposed. It is almost a safe bet that these cases fear to expose a bad tear in the undershirt or an unbaded body. Modesty in such a cause is by no means confined to industry.

The successful plant physician has developed a position where he must withstand the criticism and mould the judgment of a group of exceptionally keen employee-critics. His personality is compared by them with that of the local general practitioners and must not suffer in the comparison. Success lies not so much in what he does, as how he does it. But to hold this success he must strictly adhere to the policy of unbiased consideration of the employee patient in the light of a private patient, whose personal interest overshadow any employee relationships to the industry.

Recent Compensation Decisions

BY DOROTHY KETCHAM, ANN ARBOR, MICH.

THE constitutionality of a statute requiring certain establishments to maintain wash rooms was tested in action brought against a railway company for failure to make such provision. Such a one of this act (Laws of 1913, page 359) is as follows:

Section 1. That every owner or operator of a coal mine, steel mill, foundry, machine shop, or other like business in which employees become covered with grease, smoke, dust, grime, and perspiration to such extent that to remain in such condition after leaving their work without washing and cleansing their bodies and changing their clothing will endanger their health or make their condition offensive to the public, shall provide and maintain a suitable and sanitary wash room at a convenient place in or adjacent to such mine, mill, foundry, shop, or other place of employment for the use of such employees.

The defendant was found guilty and fined. It then brought *certiorari* to the Supreme Court on the grounds that the act was unconstitutional and that it did not apply to railroad roundhouses. The constitutionality of the act was upheld but its application to roundhouses such as defendant's was denied and the judgment was reversed. The decision in part is as follows:

The purpose of the act as declared by the title is to protect the health

of employees and secure the public comfort, and it was enacted under the police power, with suitable provisions against liability to disease or offense to those with whom the employees come in contact after leaving their places of employment. The act applies to all places of employment where the prescribed conditions exist, and as a police regulation and applied to such conditions it is constitutional and valid. (*People v. Solomon*, 265, Ill. 28, 106 N. 458, Bul. No. 169, p. 115.) The conditions so prescribed are that the employment is one in which employees become covered with grease, smoke, grime and perspiration to such an extent that to remain in such condition after leaving their work without washing and cleansing their bodies and changing their clothing will endanger their health or their condition be offensive to the public. If the evidence showed that these conditions existed in the place of employment provided and maintained by the plaintiff in error, the judgment was right; if it did not, the judgment was wrong.

The act does not apply to every place of employment in which men become dirty or perspire, but only to those where they become covered with grease, smoke, dust, grime and perspiration to the extent specified in the act. In warm weather all persons perspire, whether at work or play, and there are numerous kinds of employment in which the employees get grease on their clothing or become dirty with smoke or dust, but not to the extent specified in the act. Neither their health nor the public comfort is involved. That is

true of the ordinary blacksmith shop, the garage, or the supply house for farm machinery. There was no justifiable inference to be drawn from the evidence that the employees of the plaintiff in error were in such a condition after leaving their work that without washing and cleansing their bodies and changing their clothing their health would be endangered or their condition be offensive to the public. This is not saying that there must be opinion or expert evidence of such probable consequences, nor that a jury may not determine that question from the facts proved in the light of common experience, but the evidence did not bring the roundhouse and machine shop within the terms of the statute.—*People v. Cleveland, C.C. & St. L. Ry. Co., 123 N.E. 579.*

IF THE death of an employee is fairly chargeable to an accident suffered in the course of his employment, the Supreme Court of Illinois, June 21, 1922 has declared that compensation may be awarded even if there is a pre-existing disease aggravated or accelerated by the accidental injury. There must, however, be a direct relation between the death and the consequent disability or death.

In the case at hand an employee died of pneumonia which set in four days after he had sprained his back. The only evidence of accidental injury as the cause of death was the testimony of the attendant physician. The opinion of the doctor was, "both at the time when he treated him and at the time of the hearing that there was no connection whatever between the sprain at the back and the death." "The most that the doctor was willing to say was that there was a possibility, due to the weakened condition of Zara from pre-existing disease and increased weakness from the sprain, that the sprain may have been the predisposing cause of pneumonia; but in his opinion there was no connection whatever. There was an entire failure to prove that the death of Zara was due to an accidental injury suffered in the course of his employment by the plaintiff in error."—*Springfield District Coal Mining Co. v. Industrial Commission, 135 N.E. 789.*

INSANITY which resulted from a cerebral hemorrhage was held compensable as an accidental injury within the Workmen's Compensation Act by the Supreme Court of Illinois, June 21, 1922.

An iron molder, twelve years an employee and steady worker of the Jenes Company, had been addicted to

the excessive use of liquor and had had delirium tremens. He was afflicted with arterio-sclerosis and had a high blood pressure. He worked in a foundry carrying molten metal and pouring it into flasks. The temperature of the room was about eighty degrees although the weather outside was colder. About the middle of the afternoon, the employee "who had been engaged two or three minutes before in the work—was seen leaning against a flask, and a few of the workmen were talking to him but he did not answer." A doctor was called, the man was taken to a hospital, and later taken to Dunning. After a hearing the arbitrator awarded compensation which was affirmed by the Cook County Circuit Court. The employer sued out a writ of error to reverse the judgment on the ground that "the record contains no evidence of any ac-

cident arising out of and in the course of employment."

In the opinion of the Court, the employee "was overcome while he was at work, under circumstances which furnish an adequate cause for the result. . . . He might have suffered this stroke in the same way if he had stayed at home and not worked that day, but he did not, and he did suffer his stroke as the combined result of his disease and his work. The rupture in the blood vessel in the brain was an accidental injury, and although his existing disease predisposed him to an accident of this character, we have held that death under such circumstances may be said to have resulted from an accidental injury and is the proper basis for an award of compensation."—*W. A. Jenes Foundry & Machine Co. v. Industrial Commission, 135 N.E. 754.*

Physicians in Industry

IN THE discussion of the economic value of medical departments in industry, it was pointed out at the thirty-seventh meeting of the Conference Board of Physicians in Industry that the medical department of one of its members had saved his organization more than \$69,000 in 1920. If this company had been operating under the state insurance plan, which in this case was an exclusive state fund, the premium would have been more than \$69,000 above the cost of operating the medical department and the payment of such compensation as was necessary. The company was self-insured and through the medical department was able to pursue other activities of benefit to the workers, which would not have been possible under any other form of insurance.

In discussing methods of resuscitation from carbon monoxid poisoning, the use of oxygen alone and combined with carbon dioxide was discussed and the experimental work which has so far been done along this line was reviewed. It was the consensus of opinion of the Conference that no form of mechanical inhaler should be operated by an untrained layman, and that the use of these appliances should be restricted to those who have received special instruction in their construction and operation. For general resuscitation the Conference reaffirmed its endorsement of the prone pressure method over all others.

In discussing injuries to the lower back, the importance of considering the fifth lumbar vertebra was empha-

sized. This vertebra is the most important of all the spinal segments as it is the last mobile segment above the sacrum and as such bears the greatest weight due to body movement. It is also the one most frequently fractured. Anatomical abnormalities of this segment, such as elongated transverse processes, malposition of the facets and undeveloped pedicles together with elongated spinous processes may be present. If the elongated transverse processes rest upon the crest of the ilium they are likely to produce pain. The variation in the lumbo-sacral angle is also of importance when these processes are of abnormal length.

Malposition of the facets may cause a twisting of the vertebra, thus producing a strain. Contact between the elongated spinous processes of the fifth lumbar and the first sacral may also be the cause of discomfort.

In early life before ossification is complete the spinal column is more mobile and may maintain its anatomical balance without producing symptoms but if after complete ossification an injury occurs which disturbs this balance, it would be impossible for the patient to obtain a readjustment and pain and disability will result.

Ununited fractures of the laminae following injury many times are the cause of disability, and failure of fusion of the first sacral arch, causing a partial spina bifida, has also been encountered as one of the abnormalities that cause trouble later in life.

The Care of the Injured Miner*

BY R. R. SAYERS, CHIEF SURGEON, U. S. BUREAU OF MINES, SURGEON, U. S. PUBLIC HEALTH SERVICE.

THE care of the injured miner has many phases, each of which must be emphasized if the best results are to be realized. These phases are well known—the prevention or elimination of accidents and health hazards, the first aid and emergency treatment, and the medical and surgical care. The first two are by far the most important, as much more good can be accomplished with an equal expenditure of effort. Therefore only these two will be discussed.

Methods for prevention or elimination of hazards in the mineral industries are studied by the United States Bureau of Mines, the first aid methods for treating injuries developed and taught to the workers.

To aid in the elimination of accident and health hazards, their prevalence in the mineral industries is determined by collecting statistics. After the statistics have been compiled, analyzed, and interpreted, investigations are made in the mines as to the causes of the more important hazards and the best practical means to eliminate them are determined as far as possible. Finally, the information obtained is given to the mining public to be used to care for the miner before injury by eliminating and minimizing the hazards and immediately after injury by giving first aid or emergency treatment.

As an illustration, statistics showed that the death rate due to tuberculosis was unusually high in certain mining districts in South Africa, as on the Rand, and in sections of this country, as Joplin, Missouri, Butte, Montana, and others. Based on these statistics, many long and careful investigations were made. The studies included the making of physical examinations of many miners; laboratory examinations of the sputum; x-ray examination of the chests; examination of necropsy specimens, when available; and chemical and petrographic examination of dust breathed. These studies showed that miners who breathed rock dust while at work developed pneumoconiosis or silicosis, especially when the dust was highly silicious and was needlelike or had sharp cutting edges. Severe cases caused marked difficulty in breathing to a point where little or no work could be done, even without bacterial

lung infection of any kind. It was found, however, that silicosis made the miners very much more susceptible to tuberculosis when exposed to the infection. The preventive measures were obvious: (1) To prevent the breathing of dust, by use of wet mining methods, and by good ventilation to replace the dusty air with clean air; (2) to make physical examination of all miners on application for employment and at regular intervals thereafter and to allow underground in these mines no miner found to be infected with tubercle bacilli. This is for the good of the infected miner and for the protection of the healthy ones with whom he would work.

Other health hazards of the industry, as lead poisoning, mercury poisoning, carbon monoxid poisoning, and poor sanitary conditions have been studied and recommendations made for their improvement or elimination.

In some districts more than 25 per cent of all deaths among coal miners are due to accidents, and statistics show that about 50 per cent of the fatal accidents are due to falls of rock or coal. Of 1,973 fatalities in coal mines during the year 1921, 1,019 were due to falls of rock, coal, etc. The causes of these accidents are carefully investigated and may be attributed to (1) poor inspection by inspectors, bosses, and miners; (2) not properly barring down loose rock when found; (3) improper or insufficient timbering.

The miner can do much to prevent these accidents by carefully inspecting his working place, barring down the loose rock and properly timbering. Lack of knowledge of the causes and avoidance of these accidents may be responsible for some of them but carelessness and chance-taking are responsible for the great majority. Most miners know the dangers and also know the precautions they should take to protect themselves but are, like all men, chance-takers and careless. If properly to bar down the loose rock and properly timber the working place means delay, they take a chance.

After an accident the care of the injured man is of immediate importance. This care may be emergency treatment by a physician or first-aid care. First aid is the temporary care of an injured person by simple common-sense methods, based on principles of medicine and surgery, which may easily be applied by a layman.

The principles upon which first aid are based are:

(1) Asepsis in caring for all open wounds, using Bureau of Mines methods. The first aid men are instructed not to touch or put anything on open wounds except a dry sterile dressing. A bandage compress, which consists of several thicknesses of sterile gauze sewed to the middle of a strip of muslin, is used to cover all open wounds. Three sizes are used—large, medium, and small. The bandage compress



Three man lift—the proper method of lifting an injured man.

*Printed by permission of the Director of the U. S. Bureau of Mines.



Artificial respiration—prone pressure (Schaefer) method.

should usually be covered by a protective dressing. The triangular bandage has been found very suitable for this purpose as it can be adapted to cover any part of the body. The triangular bandage is used either in the open form or folded cravat. In addition to being used to protect the other dressings, it may be used as an improvised tourniquet and to hold splints in place, etc. A triangular bandage may be made from any kind of cloth such as a handkerchief, piece of shirt, or napkin. It has been found, however, that a triangular bandage made from a piece of muslin forty inches square by folding the square diagonally and cutting across the long side, making two triangular bandages, is most satisfactory.

(2) Control of hemorrhage by means of pressure and position of part. The pressure may be direct and remote in arterial hemorrhage. In the latter type of hemorrhage a tourniquet, which may be improvised, is applied to a point (known as pressure point) between the wound and the heart where the artery is superficial and a bone is directly under it.

(3) Shock is treated by keeping the patient lying down at rest; keeping him warm by covering him with blankets or clothing, using hot water bottles, hot bricks, warm safety lamps, etc., aiding circulation by rubbing the extremities towards the heart but not away from it; by use of common stimulants, as hot coffee or aromatic spirits of ammonia.

(4) Asphyxia, electric shock, and apparent drowning are treated immediately after rescue, by artificial respiration, using either the Sylvester or Schaefer method, although the latter is preferable as it is simpler and not so tiring. If the subject has been exposed to carbon monoxid, he should be caused to breathe pure oxygen as

the recovery is much more rapid. The oxygen should be given as early as possible after rescue.

(5) Burns are treated, after removal of clothing, by application of sterile picric acid gauze, aseptic precautions being observed as in open wounds. The picric acid has styptic, antiseptic, and some anesthetic properties. Picric acid gauze dressings are covered with triangular bandages which hold the dressings in place and exclude the air.

(6) Dislocations and fractures are treated by immobilization in a comfortable position, and a natural one if practicable, care being taken not to move the injured part unnecessarily. Well-padded splints are held in place by cravat bandages.

(7) Transportation may be necessary to get an injured man to a place of safety, or one more comfortable, and to get him to a hospital and physician. The methods vary with conditions but the principle of transporting him so that he will suffer no further injury is emphasized whether he is transported on a stretcher or by one, two, three or more men.

Knowledge of first aid has been found materially to lower the lost-time accidents where a sufficient number of the miners are trained. This is due to the early care preventing minor injuries from becoming serious and by the fact that men trained in first aid are more careful men. Recently all the employees of one company, which employs over four hundred men, were trained in first aid. Their records show that their lost-time accidents decreased 50 per cent for a six months' period after the completion of the training. Insurance companies recognize the above facts and allow a lower rate of insurance where a certain percentage of the workmen are trained.

Summary

The care of the injured miner includes:

(A) Prevention and elimination of accidents and health hazards by (1) A study of statistics, (2) Investigations of accidents and conditions, (3) Education and legislation.

(B) First aid care.

(1) Principles of first aid, (a) Asepsis in caring for open wounds. (b) Control of hemorrhage by pressure and position of injured part. (c) Treatment of shock by keeping patient at rest and warm and by giving simple stimulants. (d) Artificial respiration in asphyxia, electric shock, etc., combined with use of pure oxygen in carbon monoxid cases. (e) Asepsis in treatment of burns; protection from air if this can be done with asceptic method; antiseptics and some relief of pain by use of picric acid gauze. (f) Immobilization of dislocations and fractures. (g) Transportation by methods which will not increase the extent of injury.

(2) In addition to the benefits gained by early care of the injured, first aid has been found to tend to lower accidents by making men more careful.

An Industrial Campaign Against Venereal Diseases

An industrial campaign against venereal diseases has been carried on in Florida among the employees of two great railways, the Atlantic Coast Line and the Florida East Coast. American Social Hygiene exhibits were utilized, and nineteen illustrated lectures were given under the joint auspices of the Florida State Board of Health and the United States Public Health Service. More than 5,850 railway employees were reached in the campaign.

Turkey Enacts Laws for Benefit of Laboring Classes

Turkey has recently enacted her first legislation for improving the conditions affecting the working people. Fifteen thousand coal miners in one of the mining districts will benefit by these laws, which provide that mine owners must construct for their workmen houses of concrete, stone, or brick, with wooden floors, and an adequate number of windows. A public bath, a mosque, and evening schools must be established in each mining district, and the law requires that a pension fund be created for injured and aged employees.

Industrial Hygiene in Saxony*

FOR centuries the freestate of Saxony has been one of the most densely populated sections of Germany. The rapid increase in the population in the mountainous districts was at first due to mining. After the mines were exhausted, the nature of the soil not being suited to agriculture, the majority of the inhabitants were forced into industrial pursuits. "As early as 1849 the number of industrially employed in Saxony was larger (45.3 per cent) on an average than in the entire German empire in 1907 (37.2 per cent). In 1907 the number of inhabitants employed in agriculture amounted to only a trifle over one-tenth of the population. There are more medium size factories of 11 to 50 workmen, (in 1920 over 90 per cent of all factories and their kindred industries) in Saxony, than in the remainder of the German empire.

At the last industrial census (1907) Saxony averaged of all workers employed in Germany, textile industries 30.2 per cent, in paper industries 20.9 per cent, 17.9 per cent in miscellaneous industries, 12 per cent in clothing industry, and 11.9 per cent in the industries of machinery, instruments and apparatus. These are the most important branches of industry. The last workmen's census of May 2, 1921, cannot be considered an accurate outline of the working year on account of the political and economic conditions; but it indicates that of the factory workers of Saxony, 26 per cent are employed in textile trades, 22 per cent in machine and instrument making, 9 per cent in metal working, 7 per cent each in shoe and clothing industries, 6 per cent each in wood working and in paper making, 5 per cent in stone and earthenware work. More than half the workers in textiles and clothing industries are women as are about 40 per cent of the workers in food industries and paper making. Over 10 per cent of the workers in machine and instrument making, in metal work and clothing are children, as are about 9 per cent of those engaged in food industries and wood working.

In Saxony there is also a great deal of home industry, constituting main vocation as well as bywork or extra means of support. In 1907 home industry in Saxony amounted to one-third of all the empire, and this in

turn was one-third of all investigated industries. The chief branches of home industry in Saxony are certain specialties in the spinning industry, (machine and hand knitting, weaving, reeling, repairing, knitting, etc.), also the manufacture of artificial flowers, textile and leather gloves, musical instruments, wooden toys, furniture, splint baskets, straw hat braiding, brushes and cigars.

Following Bavaria's example, a medical director was appointed October 1, 1919, in the national department of industry. His field of operation consists of: (1) Cooperating (a) with the department of industry and by request with other departments; (b) with supervisors of industry, mine inspectors, regarding questions of industrial hygiene and enforcement of the workman's protection law, inclusive of home-work law, especially in vocational diseases, factory hygiene (dressing, wash and bathroom arrangements, toilets, airing and keeping clean), employment of female and juvenile workers, questions of fatigue as well as unsanitary condition of water, air and floors and annoyance caused by noisy machinery.

(2) Supervision of statistics of sickness and death of vocational workers, general examinations in single vo-

cational branches, if necessary, experimental laboratory work, lectures, educational courses, consideration of the different social hygienic problems and questions of choice of vocation.

The national industrial physician is industrial inspector in the sense of paragraph 139b of the industrial ordinance and possesses the same privilege as the other industrial inspection officers, to inspect industrial plants, but dares not divulge any business secrets that may come to his knowledge during such inspection. He confers with the physicians and officers as well as the physicians of the sick fund, investigates their reports concerning vocational sicknesses and gives his opinion whether the working conditions are unhygienic and whether changes or substitutions are advisable. He is a regular member of the national board of hygiene as well as a member of the committee of the national welfare board, the national committee for vocational advice, and teacher's employment board, the national board of workmen's employment and national board for providing for injured soldiers.

Saxony has, herewith, taken the first fundamental steps toward effecting industrial hygiene through organization of labor.

Serum Institute in Copenhagen



The director of the Institute, Dr. Thorvald Madsen, is the Chairman of the Health Section of the League of Nations and the Institute will serve as headquarters for the cooperative study of sera and vaccines now being carried on by the Health Section of the League

*Translated from *Einrichtungen auf dem Gebiete der Volksgesundheitsund Volkswohlfahrtspflege im Freistaat Sachsen. 1922. Dresden.*

Industrial Psychiatry

WHAT is the outlook for industrial psychiatry? Are the activities of industrial psychiatry to be confined to a mere recording of symptoms, and its benefits to be only the detection and removal of the occasional institutional cases from the ranks of the industrial personnel?

Without attempting to define industrial psychiatry, Dr. Jau Don Ball in the *American Journal of Psychiatry* clearly points the future for the psychiatrist in industry. Industrial psychiatry should not be considered a "weeding out" process, but a method of conservation. The psychiatrist who is to enter the industrial field, therefore, needs to widen his range of vision by a full consideration of industrial environment and wage schedules.

Psychiatry is no panacea for the ills of industry, but it offers the only means of solving industrial personnel problems. Mechanical devices and machinery have had the attention of the engineering groups, but for the most part the worker, under unstudied conditions, and often under undue physical and mental stress, has been permitted to become hypersensitive and abnormal in reaction. As the employer is usually as blind to the situation as the employee, the duty of the psychiatrist is to seek a comprehension of the situation from a psychiatric viewpoint. This is not a philanthropic move in industry, but an advance business method, a method which applies to the whole personnel, from executive to roustabout.

The organization and function of the personnel department, therefore, must be effected by the psychiatrist as director of the department. He should have available consultants in neurology, psychology, and medicine. A special secretary may be needed, and the personnel work should be fully coordinated with the departments of engineering and employment management.

The psychiatrist will be especially concerned in group and individual tests, in work and job analysis, in studies of terminations, distribution of labor, and in the observation of special "situations."

Dr. Ball advocates for all employees a scoring method after the United States Army plan for rating officers, the score for each individual based upon ten qualifications: (1) At least average intelligence; (2) good

physical condition; (3) good nervous condition, to be determined by neurological examination; (4) good mental condition, to be determined by psychiatric examination; (5) personality characteristics of special kind; (6) speed; (7) accuracy; (8) good reasoning ability; (9) good auditory memory; and (10) good visual memory. The score for each person is the total number of points obtained. This is not a percentage score but is based upon qualities or groups of qualities whose values are determined on the basis of the job requirements.

A series of typical cases is given, showing the method of recording together with the recommendations either as to placement or as to hygiene, mental or physical. Another series of cases is reported to show the value of such studies as applied to studies in job terminations. The figures given on terminations constitute an actual study made from one of

the departments of a large manufacturing plant in San Francisco where in a three months period the lack of diplomacy on the part of a single foreman cost the firm in avoidable labor turnover nearly eight thousand dollars.

The work reported by Dr. Ball is the result of three years study of industrial problems in the respective plants of a shipbuilding corporation, a calculating machine manufacturing company, a large soap manufacturing company, and a large oil company. He concludes from these studies that: (1) Every large industrial organization should have a psychiatrist on its staff. (2) Groups of small industrial organizations should seek the services of a consulting industrial psychiatrist. (3) Labor unions should welcome the advice and guidance of an industrial psychiatrist. (4) Every university should establish a department of industrial psychiatry. (5) Personnel departments should be under the directorship of industrial psychiatrists.

Women Workers in Maryland

A REPORT on "Women in Maryland Industries, A study of hours and working conditions," (*Women's Bureau, Bull. No. 24, U. S. Department of Labor*) by Mary V. Robinson of the Women's Bureau describes the conditions found as a result of a study undertaken at the invitation of the Governor of the State of Maryland. In all, 240 establishments were visited, 142 of these being in Baltimore and the remainder in fourteen smaller cities of the state. The establishments divided themselves into four groups, manufacturing, mercantile, laundries, and restaurants. In Baltimore over seventeen types of establishments were visited, while in the remainder of the state more than ten types were treated in a similar manner. Definite information concerning the number of employees and hours of labor was obtained from the employers, while the working conditions were determined by plant inspections. Additional facts regarding personal histories was obtained by the use of cards filled out by the employees.

Broadly speaking, it may be said that this study revealed the fact that in a group of industries employing some twenty-seven thousand persons, approximately half of whom were females, little or no general systematic attempts were made to provide satis-

factory working conditions. This is evidenced by the fact that a large proportion of the plants were needlessly deficient in attention to the physical surroundings of the workers. As examples, it may be pointed out that crowding of persons and machines was manifest in 54 workrooms, cleaning unsatisfactory in 116 workrooms, lighting inadequate in 210, and ventilation poor in 52 workrooms, while obvious fire hazards existed in 148 plants. The sanitary facilities of the plants visited were found to be wholly inadequate, the drinking facilities being so in 172 plants, the washing facilities likewise in 208 plants, and the toilet facilities in 213 plants. In addition to this the survey disclosed the fact that occupational hazards existed in some 97 plants.

In considering the hours of labor it is to be pointed out, as this report does, that Maryland is in general a ten-hour day and 60-hour week state.

This report is very valuable in picturing a cross section of the conditions in Maryland industries, but it is to be regretted that more detailed information concerning such subjects as lighting and ventilation, which are undoubtedly dealt with in only a superficial manner was not secured so that proper provision might have been made in the new labor statutes which it is hoped will soon be forthcoming.

Packing House Waste Disposal

A COURT order made it imperative early in 1921 that Joseph E. Decker and Sons, packers at Mason City, Ia., build with the utmost speed a plant for the disposal of their packing house waste. The wastes of the plant were then being emptied into Lime Creek on which Mason City is located. The city sewage treatment plant consists of Imhoff tanks and trickling filters but was not of a capacity to take care of the additional waste of the packing house. This waste is from water used in washing in the various processes and contains blood, manure, grease, hair, pieces of flesh and other organic matter. It is highly putrescible and though at times of high water, Lime Creek is capable of taking care of screened sewage, in the low water stages, during the greater part of the year, it will not care for the soluble organic matter.

The ruling of the court had left no time for experimental work either to determine the flow or concentrations of the waste. From the conclusions drawn from the experiments at the Chicago stock yards it was decided to build an activated sludge plant. Recommendations included an aeration unit 48 feet long, 39 feet wide and 15 feet deep which would give about eight hours detention with 600,000 gallons flow daily, and a 25 per cent sludge return, a second or even a third unit to be constructed if experience proved that one was inadequate.

Screens and surface tanks had previously been in use at the plant but they had not given satisfaction so that it was decided to abandon them and build a new so-called grease tank

in the aerating chamber of the activated sludge plant.

All waste from the plant is brought to a sump from which centrifugal pumps force it to the grease tank, which is six feet wide at the surface, four feet deep at the shallow side and sloping to eight feet on the deeper side. From the deep side openings controlled by valves lead to a sump from which the sludge can be forced by compressed air to the by-products house.

From the grease tank the waste passes to the aeration chamber, traversing the length of this (48 feet) four times after being mixed with the activated sludge. "The air is blown into the mixture through filter plates placed at right angles to the line of flow in rows six feet apart so that the plates cover about one-fifth of the area of the tank. The space between the plates is elevated so that the settling sludge will fall to the bottom above the plates, and be carried to the surface by the air. The aerating chamber has a capacity of approximately 155,000 gallons so that with a flow of 300,000 gallons with 30 per cent sludge returned, there will be a detention period of about 9 hours."

From the aerating tank the waste passes to a Dorr thickener. This is 36 feet in diameter and fourteen feet deep, contains the regular Dorr mechanism and is constructed of reinforced concrete. The bottom slopes slightly toward the center from which the sludge flows by gravity to an air lift well from which it is pumped to the mixing box at the end of the

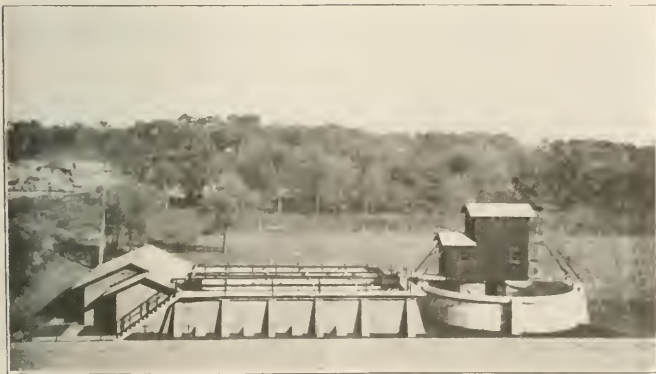
grease tanks. "The effluent flows from the rim of the tank which has one-fourth of its circumference depressed. The depressions were made by placing 2x4's every 16 inches in the frame into which the soft concrete was poured. The distribution of the flow is very satisfactory, more so than when an attempt is made to use the entire circumference for overflow."

This plant was put in operation in October, 1921, and a satisfactory effluent developed in ten days. Some trouble was experienced after a Sunday shut down owing probably to the large settling capacity. This was remedied by returning the sludge at the same rate during the shut down as during maximum operation. It is probable that the addition of sufficient water to form a current through the settling basin would prevent putrefaction during a shut down.

It is proposed to treat the sludge with sulphuric acid, draw off the clear liquid, pump the sludge to the by-products house and concentrate the sludge with the tankage. When this plant was described by Edward Barstow (Proceedings of the 34th Annual Meeting Iowa Engineering Society, Sioux City, Iowa, Jan. 17-20, 1922) some sludge had been pooled as the sludge pump was not then installed. During the first winter of operation either because of an overload due to the extra large number of hogs killed or because of the cold weather the plant did not give satisfaction. During the latter half of March good results were again obtained.

Sanitary Surveys of Mining Camps

Sanitary surveys of the mining camps in Utah, Nevada, California, Arizona, and the states of the Lake Superior Districts, are being continued by the United States Bureau of Mines, with the object of determining, insofar as possible, the effect of sanitary environment upon the health of the miner. Reports based on these surveys, calling attention to the especially good sanitary conditions and to the insanitary conditions, will be written from time to time with recommendations for the improvement of the latter. These reports as completed, together with ratings based upon carefully determined weights or values for the various factors which affect the health in the mining camps and communities surveyed, will be forwarded to the operators and others vitally concerned.



Waste disposal plant of a packing house plant at Mason City, Ia., of which the aerating capacity is 155,000 gallons. With a flow of 300,000 gallons with 30 per cent sludge returned, there is a detention period of about nine hours.

Garment Trade Fire Hazards

THE Twelfth Annual Report of the Joint Board of Sanitary Control in the Cloak, Suit, Skirt, Dress, and Waist Industries deal in considerable detail with a survey of 1,168 New York buildings in which shops of the garment trade are located. George M. Price, M.D., is the director of the Board of Sanitary Control. The recommendations for changes in the fire laws and other suggestions are submitted by Rudolph P. Miller, C.E.

It is recommended that buildings erected before October 1, 1913, and not previously used as factory buildings should not be allowed to be used for factory purposes unless they are made to conform with the requirements for new buildings; that all interior stairways in buildings over one story in height should be inclosed; and that access to the roof should be provided even where there is not safe egress from the roof to adjoining buildings.

There exist on many of the old buildings fire escapes which do not conform to the present day requirements. The owners often think that by allowing them to remain they provide added protection. If this is to be permitted they should be structurally safe and provided with drop stairs at the bottom. The owners of buildings equipped with fire alarm systems, according to law, have often let the systems deteriorate or deliberately put them out of commission because approved automatic sprinkler systems were later installed which exempted the owners from maintaining an alarm system. "Whether a building is equipped with sprinklers or not, it is desirable that the occupants of a building should be notified promptly of the existence of a fire by an alarm of some kind."

That provision of the labor law which required the posting of notices specifying the number of persons that may occupy the several floors or spaces in a building is becoming a dead letter. Mr. Miller considers this too important a requirement to be disregarded and recommends a more direct and specific wording of that section of the law dealing with this requirement.

It also appears from the survey that on many buildings the counter-balanced stairs from the lowest balcony of the fire escape were in an unsafe or inoperative condition. In some cases balanced drop ladders were provided in place of the counterbalanced

stair required by the law. It would seem that in this case, since the law is not at fault, that an intensive inspection of fire exits should be made under the direction of the fire commissioner.

It is stated that the administrative authorities are making a serious effort to secure compliance with the law, and that on the whole they are succeeding fairly well. In some cases it is thought that the administrative officials should have the authority to use drastic measures. It is recommended that there be incorporated in the law a provision whereby the fire commissioner in the city of New York, and elsewhere the industrial commissioner, if the party responsible for an unsafe condition fails to correct this condition after being warned and allowed time for compliance with the law, may, on a twenty-four hour notice cause the building or the unsafe part of it to be vacated until the conditions of the law are fulfilled.

A common violation of the labor law is the failure to provide a fire drill. The attention of the fire commissioner should be called to this lack and more vigorous enforcement of this provision urged.

Whether or not automatic sprinklers are of value in the saving of life they are unquestionably useful in arresting and restricting the fire. Although their compulsory use is probably not expedient their extension should be encouraged. "Except in buildings over seven stories high, in which more than two hundred persons are employed above the seventh floor and in which wooden floors and trim are used, the authority to require them in the city of New York is vested in the discretionary power of the fire commissioner." It would seem to be no hardship if the limitations to the mandatory powers were removed and sprinklers required in all factory buildings over seven stories in height. The dangers naturally inherent in industries connected with garment trades make rulings essential to insure universal protection to the workers.

A Safety Device for Mines



Steel tool car in use at the Speculator Mine of the North Butte Mining Company, by means of which the miner can pipe air as he proceeds.

The modern metal mine is a large user of compressed air. To make compressed air available at the working places, it is necessary to construct pipe lines to the extreme limits of the mines. In a mine with extended levels, crosscuts and drifts, the piping problem is a difficult one. In order to facilitate this work some of the companies have designed a work car to carry a compactly arranged but

complete set of tools; which the *National Safety News* heartily recommends. The car carries a supply of nipples, unions, and other accessories, so that a pipe can be cut and threaded on the job. The car is a convenience as it confines the work of pipe construction to a small area and furnishes the proper tools for the work. It adds materially in preventing accidents to the pipe gang.

INSTITUTIONAL HEALTH

The Health Problems of Schools and Colleges, Hotels, Summer Camps, Children's Homes and Homes for Dependents

Are Prison Walls to Shut Out Science?*

Responsibilities of Prison Physicians in Combating Venereal Diseases

By VALERIA H. PARKER, M.D., DIRECTOR, DEPARTMENT OF PROTECTIVE MEASURES, AMERICAN SOCIAL HYGIENE ASSOCIATION, NEW YORK CITY.

IT NEEDS no more than a casual survey of medical statistics of penal institutions to determine the fact that, save in those established as separate reformatory institutions for women and girls, little advance has been made in either diagnosis or treatment of those diseases which more than any others are significant from a racial point of view and add more permanent dependents and defectives to be cared for by the taxpayers of the state than any other contributing cause. The exceptions to this are so few as to stand forth as conspicuous examples of progress amidst a general situation of neglect and lethargy.

Several years ago I was appointed member of a state commission to investigate the methods of diagnosis and treatment of venereal diseases in state and county institutions. At that time the state hospitals for the insane, the reformatory for men, and the industrial school for girls were the only institutions in which any attempt was made to examine every inmate for venereal disease, and to institute adequate treatment when positive findings resulted. The superintendent of the Reformatory for Boys stated that in a period of fifteen years there had not been a case of gonorrhea or syphilis in the institution, thus indicating that thorough physical examinations were not made. No reformatory for women existed at that time but when established later, provided proper facilities, while the state prison at a later date instituted routine examination and treatment.

In a vast number of our penal institutions the attention of the prison physician is given only to those cases of venereal disease which give unmistakable manifestations either through external lesions which elicit complaint from other prisoners or those which incapacitate a prisoner from performance of the work allotted to him.

That a high percentage of prisoners are infected with venereal disease there can be no doubt. The draft statistics compiled from vigorous young men outside of prison walls revealed fifty-seven infected out of every one thousand men. The physician of Sing Sing Prison, where most careful attention is paid to diagnosis and treatment of venereal diseases, finds an average of 21 per cent syphilitic and 60 per cent suffering from active or chronic gonorrhea.

Within the past decade, science has given the medical man accurate means for diagnosing both gonorrhea and syphilis through laboratory and microscopic findings, methods of thorough physical examination for chronic symptoms, as well as methods of treatment which if carefully applied over a sufficient period of time will eliminate the majority of venereal infections in the early stages and modify most chronic infections to a marked degree. The difficulties of controlling venereal disease outside of penal institutions may be grouped under the following heads:

(1) Difficulty in securing examinations of persons infected unless they consult physicians voluntarily or give evidence of such sexual promiscuity

as to warrant compulsory examination.

Compulsory examination of men under the latter circumstances is still of rare occurrence and there are valid objections to the compulsory examination of women before conviction of sex offenses.

(2) The patient frequently discontinues treatment after the most troublesome symptoms have abated.

(3) Symptoms are frequently aggravated by failure of patient to observe physician's orders, such as refraining from liquor, sexual intercourse, etc., while under treatment.

(4) Free clinics are not everywhere available and many cannot afford long continued treatment from private physicians.

(5) The quack, the charlatan, and the unscrupulous druggist too frequently secure the patient who believes in their promise of a quick and easy cure.

(6) Opportunities for reinfection after cure are ever present for the sexually promiscuous.

In all these points the prison physician has the advantage:

(1) Each potential patient can be compelled to submit to examination.

(2) Treatment can be continued as long as necessary while the prisoner is under sentence and in many states he may be detained until cured. In any case he may be reported to the Health Department upon discharge.

(3) The conduct, environment, and diet of the patient are under observation and control while in custody, together with prevention of intimate association with the opposite sex.

*Read before the American Prison Association, Detroit, Mich., October, 1922.

(4) Facilities for treatment are or should be at hand—provided by the state.

(5) Accurate medical knowledge, which should be possessed by any physician who occupies a position of public trust and responsibility for the health of others, is available.

(6) Little opportunity for reinfection after cure exists.

There are several reasons for the failure of prison physicians to meet the opportunity which is so evident:

Technical training in modern methods of diagnosis and treatment has not been available to all.

Those administering prisons and public funds have not realized the importance of increased facilities and appropriations for venereal disease work.

Antipathy to the work incident to the treatment of venereal disease still exists.

The responsibility for the treatment of venereally diseased prisoners seems to me to be greater than for any other group of citizens, if for no other reason than to protect the public at large. Their very presence in a penal institution indicates lack of self control which prison life may or may not remedy. The sex instinct, being the strongest instinct with the exception of hunger, is the one least likely to be controlled, therefore every uncured infection is a potential source of danger to others upon release. Gonorrhea leads to serious and damaging complications in its chronic form, while syphilis tends to progressive physical deterioration unless treated and cured, hospitals, institutions for the insane, and other public institutions will receive the tide which the prison might have stemmed. Among every group of prisoners will be found those whose very crimes were the result of congenital syphilis. Many uncured discharged syphilitics are potential fathers of such as these.

Recommendations for minimum standard of venereal disease care in penal institutions, therefore must be held to include:

(1) Adequate salary for prison physicians which shall encourage men and women of scientific skill to seize the opportunities offered by penal institutions as a field of medical service at less sacrifice than is now demanded.

(2) Physical examination of every prisoner for venereal disease.

(3) Laboratory and microscopic tests made either by the State Board of Health or a laboratory in the institution.

(4) Careful and continuous treat-

ment until repeated examinations give negative findings.

(5) System of social case work which shall establish communication with Health Officers in home community of prisoner in order that families of those found actively infected may be given benefit of treatment.

(6) No prisoner discharged while actively infected with venereal disease, and when discharged reported to health authorities.

I believe there are two reasons why a larger percentage of institutions for women and girls have adequate venereal disease treatment than those for men:

(1) The public in general has been quick to recognize the delinquent woman, usually sex promiscuous, as a potential carrier of venereal disease.

(2) Generally progressive methods of reformatories for women have necessarily included means for venereal disease treatment as a necessary agency in promoting her own welfare as well as that of the community.

Let us as physicians accept the new attitude toward venereal infection as a challenge to see to it that prison walls do not shut out the advances of science but only bar out those handicaps to medical care and treatment which are incident to the freedom of the individual in the outside world.

Near East Relief to End

ANNOUNCEMENT is made that The American Red Cross has fixed June 30 as the date for closing emergency relief work in Greece. For the past five months the Red Cross has been providing for 868,000 refugees as an emergent situation, but the solution of the problem is one not to be found by private means and it will be turned over to the joint consideration of all the nations involved.

It is stated, however, that the Near East Relief is prepared to continue to the extent of its ability the child wel-

fare work, including the support of 65,000 wholly dependent orphans now in its charge in the Caucasus, Greece, Syria, and elsewhere, and to continue supplementary work for a larger number.

The problem of finding permanent homes for the refugees is one, however, which is not within the scope of private relief agencies. It will require the cordial cooperation of the local authorities where the refugees may be situated, and of the powers whose territorial and other interests in the Mediterranean area may make it possible for them to assist.



The child welfare problem, considered apart from the solution of the adult refugee situation, will still command the attention of the American Red Cross. This picture shows some of the seventeen thousand youngsters cared for at the Near East Relief orphanage at Alexandroupoli.

Underwood & Underwood

State Program for Minnesota's Blind

BY SAMUEL A. CHALLMAN, STATE DIRECTOR OF SPECIAL CLASSES, PUBLIC SCHOOLS OF MINNESOTA, ST. PAUL, MINN.

THERE are in Minnesota 1,143 blind persons who are residents of the state, according to the latest available statistics. These persons have nearly all been served in one capacity or another by various public and private agencies in the state working for and with the blind. The service has, however, not always been of the most satisfactory nature either to the recipient or to the agency which has endeavored to render it. There has been on the part of both a desire to unify the work and make it more comprehensive in its scope.

In order to bring about such a condition the governor was asked to appoint a commission to study the situation and make a report of its findings with recommendations for a complete program according to which the work might be properly organized. The governor readily complied with this request and appointed a non-salaried commission.* This commission has devoted itself to the problem before it, and has given careful consideration to every phase of the subject. Its report has been placed in the hands of the governor, who has recently put it before the legislature.

The commission has given particular attention to the following matters: prevention, education, occupation and training, care and relief, and work of the supplemental agencies. Its recommendations are of two kinds: those dealing with legislative action and those dealing with problems of administration of public agencies by co-operation, and of co-operation with private agencies.

Legislation Proposed

In order to obtain the proper kind of organization for effective work, the

commission proposes that the present law in regard to a State Agency for the Blind be revised, and that the work assigned by law to this agency be placed under the State Board of Control. It recommends that the name, State Agency for the Blind, be changed to the Bureau of Public Welfare. It widens the duties and responsibilities with which the agency was formerly charged and authorizes the State Board of Control through this bureau to administer such appropriations as the legislature may make from time to time for discriminating care and relief of the indigent blind of the state.

In order that the special classes for the blind in the public schools may reach a greater number it proposes that the present law be so amended that a school district be required to establish a class, whenever there are eight or more pupils in the district who are eligible to such a class. The law now provides that any person of school age—5 to 21 years—being of sound mind who, by reason of defective sight, can not profitably or safely be educated in the public schools as other children shall be considered blind and is eligible to admission to a special class.

The commission also proposes that the State Board of Control, the State Board of Health, and the State Board

of Education coordinate their work, through the establishment of an advisory board made up of representatives from these bodies.

It also urges that an adequate appropriation be placed at the disposal of the State Board of Health for the purpose of combating the spread of trachoma. The need of this appropriation is very urgent, as evidenced by investigations made by representatives of the State Board of Health and the office of the Surgeon General of Public Health at Washington, D. C.

Taking up the question of prevention, the commission goes on record as urging the expenditure of public money for the prevention of blindness, on the ground that the state of Minnesota owes it to her children that their sight be safeguarded from birth, and that the state also owes it to its citizens to protect them from eye hazards and industrial diseases arising from modern industrial employment. The whole problem has been summarized as follows: (1) Most blindness can be prevented; (2) we have the opportunity of making it a disappearing problem; (3) the state has a responsibility for the control of blindness which it cannot escape; (4) the cost of prevention is small when compared with the cost of blindness; (5) it is a project in human conserva-



Blind reed furniture maker trained by the Minnesota Division of Re-education.

*Membership of the State Commission on the Blind is as follows: Mrs. C. W. LaDu, chairman, member State Board of Control, St. Paul; Hon. W. I. Nolan, member state legislature, Minneapolis; Hon. W. I. Norton, member state legislature, Minneapolis; Hon. Hilding Swanson, state senator, Brainerd; J. B. Sanborn, District Judge, St. Paul; E. G. Steger, district Mutual Aid Blind Association, St. Paul; Mrs. I. L. Rybins, president, Mutual Aid Blind Association, St. Paul; Oscar Sullivan, state director Division of Re-Education, St. Paul; George P. Meyer, supervisor special classes for the blind, Minneapolis; Dr. C. A. Prosser, member State Council of Agencies for the Blind, Dunwoody Institute, Minneapolis; Miss Edith Marsh, executive secretary, Minneapolis Society for the Blind; Frank Jordan, member Minnesota Organization for the Blind; Mrs. A. W. Strong, president Minneapolis Society for the Blind; Prof. M. C. Elmer, professor of Sociology, University of Minnesota; Bertha Hanford, state and county agent for the blind, Duluth; Jean Poirier, president St. Louis County Association for the Blind, Duluth, and Hon. Charles E. Adams, state senator, Duluth.



David Rau, a blind man employed by the Minneapolis Society for the Blind as weaver of pattern rugs. Now teacher of weaving in the Minnesota School for the Blind at Faribault.

tion; and (6) justice requires that Minnesota safeguard the future of every child.

The importance of a definite program of prevention is conclusive when it is considered, first, that relief measures for the blind without such a program do not lessen the amount of blindness; second, the conditions of modern life including universal education and close work with artificial lights have brought about increased eye strain; third, eye hazards in industrial occupations have increased the number of blind with the development of these occupations; fourth, science and human experience have discovered many of the causes of blindness and the remedies for some of them; fifth, due largely to present measures of prevention, meager as they are, blindness at present is not on the increase; sixth, socially as well as financially, the prevention of blindness is an economic asset; seventh, leading authorities estimate that approximately two-thirds of the cases of blindness now existing are due to preventable causes. All this indicates that we need to extend opportunities for medical and surgical aid to all persons in danger of impaired eyesight, and in order to reach them, it is often necessary to search them out and provide treatment for them at public expense. The public in general stands in need of education in regard to the care of the eyes, the danger from contagious eye diseases, the effect of venereal diseases upon

the eyes, the safeguarding of individuals in employments which tend to bring about loss of sight or diseases of the eye, and the causes of blindness as well as the ways in which it may be prevented or arrested. Eye clinics conducted by the State Board of Health, private hospitals, and municipalities are strongly recommended as are also courses of instruction in the public schools in the

hygiene of the eye and periodic examinations of the eyes of all school children.

The report of the Commission deals at length with the importance of the education of the blind. It emphasizes the fact that instruction must be essentially individual in its nature, a very broad field must be covered under difficulties, the simplest imitative movements of the sighted must be carefully mastered, and, finally, the curriculum must be rich in the development of latent natural talents. Such a policy is of necessity costly, but it is an obligation which the state must accept. The education of a blind child should begin at the earliest possible time so that those elements in his education, which come naturally into the life of the sighted child through imitation, may be instilled before wrong practices are acquired. Much of this training should precede the child's admission to school and should be conducted in the home so that the home ties may be preserved as long as possible. Such pre-school training of the right kind will conserve time later on, when the child enters school and spare him much discomfiture which he is otherwise likely to experience in adjusting himself to the conditions of life which exist outside of the home.

The State School for the Blind is located at Faribault. A few children just over six years of age are admitted to this school, under exceptional conditions, but the usual age at which children enter is eight years.

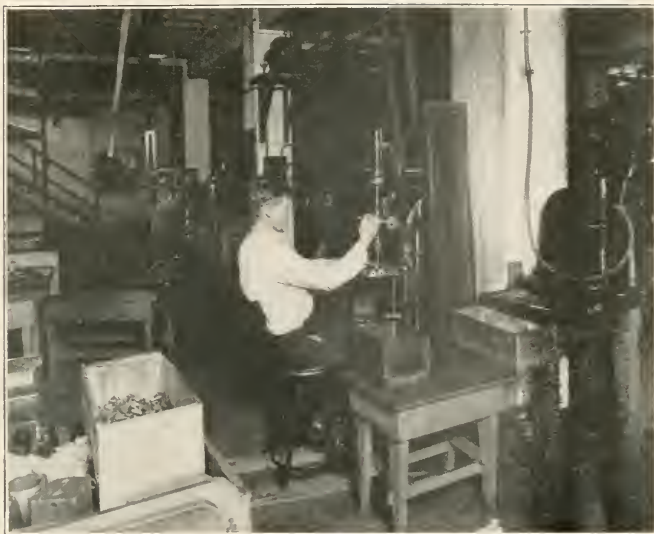


Exhibit of work done by the blind.

Special classes for the blind are provided in five of the larger public school systems of the state. The age of admission into these classes is five years, but only a very few children enter before seven years of age. School systems in Minnesota are encouraged under the present law to establish classes for the blind by a grant of state aid to the amount of \$300 for each pupil who is enrolled throughout a school year of at least nine months, on the condition, however, that there must be enrolled not less than five children. The commission proposes, as already stated, that school districts be required to establish a class whenever there are not less than eight children in the district for whom application is made.

The report contains a detailed discussion of the principles and aims that should govern the state school for the blind on the one hand and the special classes in the public schools on the other. It discusses the needs of Braille readers and children with impaired sight who need large type books. It recommends better service for sight-saving classes and increases state supervision of these classes. It suggests the establishment of sight-saving classes in the State School for the Blind. It advocates a readjustment of the music department in order that it may better serve the pupils according to their varying activities, abilities, aptitudes, aims, and needs. It endorses the present provisions for awarding scholarships for higher education to the amount of \$300 to each of a maximum quota of five promising blind persons and urges that greater publicity be given to this feature.

In commenting on the occupations and training of the blind the commission points to the fact that the tendency to huddle them into a few vocations is a segregating tendency and



Blind drill press operator

results in abnormal situations. The blind have ordinarily sought employment along the lines of handicrafts (basketry, weaving, chair caning, broom making, salesmanship—usually of the canvassing variety—piano tuning and occasionally massage and dictaphone work). Some have gone into the professions, but their number is very limited. The traditional handicrafts are gradually becoming obsolete. Factory work is becoming more diversified. The blind must find new occupations to make up for the disappearing ones.

The division of re-education in the state department of education has given much attention to this problem. In the course of its investigations, it hired a blind man to go into factories, with which arrangements had been made, for the purpose of demonstrating whether or not such a man could satisfactorily perform work of various kinds. The result of this man's work and of a survey carried on by the division showed that there were 90 processes in 17 kinds of industries that could be performed by blind persons. The industries listed by the division are: small machine parts shops, paper box factories, knitting works, automobile body building and repair shops, novelty advertising companies, electric light globe factories, wooden box factories, paper and cloth bag manufacturing plants, clock and chimes manufacturing plants, candy manufacturing plants, coffee companies, cigar manufacturers, wholesale hard-

ware companies, bed manufacturers, flour mills, linen supply companies, and food manufacturing plants.

The commission recommends that a consistent and united effort be made by all public as well as private agencies dealing with the blind to extend the number of occupations open to them. It advises that, owing to the small demand for handicraft products, learners be directed away from this particular type of employment as fast as it is possible to find other lines for them. It suggests further study and research into factory employment. It advocates the adoption of plans for vocational guidance for the state school, the special classes in the public schools, and the Division of Re-education. It commends the work done by the private agencies in finding employment and providing work for blind persons, and calls attention to the fact that nearly \$14,000 was taken in by these agencies in 1921 from sales of products.

For the care and relief of the indigent blind, the commission proposes that the per capita allowance shall not exceed a maximum of thirty dollars a month for one blind person, or, in case two blind persons marry after the passage of this act, the same amount. From such relief are excluded all blind persons who solicit alms, or are inmates of public institutions, or of charitable institutions and are supported without charge to the blind person himself, or to any blind person who has for five years preceded-



Sightless typist of Minneapolis, Minn.

ing loss of sight been dependent upon public relief. Persons who apply for relief must show that they are citizens of the United States, that they have become blind while legal residents of Minnesota or that they have been legal residents of the state for not less than five years prior to making application for relief, that they are unable to provide themselves with the necessities of life, that they are without relatives who are able to support and care for them, and that they will, unless given relief, become charges upon the public. Any persons receiving such relief thereby automatically become ineligible to any help from any other public funds.

The commission recognizes that volunteer agencies are an invaluable factor in promoting the welfare of the blind. Such agencies are the challenge to the citizenship to contribute such service as will make the law an effective living force, provided they are earnestly seeking to promote the success of the state program.

Minnesota is fortunate in having several such agencies, each of which is represented on the commission by one or more of its members. These private agencies have in the past been, and it is the intention of the commission that they shall continue to be a valuable link between the various state agencies and the people who are seeking help from the state. In addition to this they are in a position where they can render assistance beyond the limitations imposed by law on state agencies. Their work does and can cover a great variety of activities, ranging from intimate home service and socializing influences to bringing to them opportunities of work, of training, of developing markets for their products, of providing places for manufacturing purposes, and of assisting them in their business relations. The commission goes on record, after its exhaustive study of the subject, as affirming that there is yet much to be learned about the problem of the blind, and that there are new methods to be worked out. It finds that the pioneer work as well as the advanced work beyond the limits fixed by law can best be done by volunteer agencies.

The complete program for these agencies, put into a nutshell, would include such services as: (1) bringing to the attention of public agencies such individuals and conditions as need their services and attention; (2) doing educational work in homes containing blind persons chiefly children of pre-school age. This includes, of course, interesting sighted members of

such families as well, so that they may be aided in understanding the problem of their own blind and adjusting themselves to it; (3) searching out industrial opportunities for the blind in normal industry, and educating employers to the possibilities of blind people as desirable and profitable employees; (4) organizing volunteer individual service to supply the individual interests and the personal touch which the state agencies can provide for only in a small measure.

In conclusion it should be noted that the above is only the briefest kind of summary of this voluminous and very interesting report. For want of space,

many matters, discussed at length in the report, have been given only the merest mention or have been omitted entirely. It is to be hoped that the high lights have been brought into prominence and that the thorough and comprehensive work of the commission may result in a great many benefits to the blind as well as to those who in years to come will be saved from blindness by preventative measures. In the words of the commission: "Every dollar spent on such a program will be certain to yield continuous deferred dividends in a reduced social burden and in an increased number of self-reliant, intelligent useful citizens."

Vitamins in Meat

MEAT has long been one of the most important articles of food in the dietary of the American people. In pounds the 1922 per capita consumption was as follows: Beef, 57.7; veal, 8.3; mutton and lamb, 6.1; and pork, excluding lard, 72.8; a total of 144.9 pounds per year, or 0.4 pound per day. Meat forms, together with poultry, 16 per cent of the aggregate American dietary as compared with 18 per cent for dairy products, 25 per cent for fruits and vegetables, and 31 per cent for cereals and their products. Meat also furnishes 30 per cent of the protein and 59 per cent of the fat in the dietary.

Even more striking is the relatively large expenditure for meat as compared with other classes of foods. H. C. Sherman has stated that as a result of a dietary study of 2,567 workmen's families, the United States Bureau of Labor Statistics found that the average expenditure for meat, poultry, and fish amounted to 33.8 per cent of the total cost of food.

Much importance recently has attached to studies planned to determine the vitamin content of average diets and the statement has frequently been made that meat in general is poor in vitamins. A careful study of the literature indicates that only a limited number of investigations have been carried on to determine the vitamin content of meat foods, and that has been done with beef and horse meat.

Of great interest, therefore, is the government report just issued as Bulletin No. 1138 of the U. S. Department of Agriculture of studies made by Ralph Hoagland on vitamin B in the edible tissues of the ox, sheep, and hog. The study is in two parts,

one devoted to determinations of vitamin B in the voluntary muscle, and the other on vitamin B in the edible viscera.

The experiments detailed in Part 1 of the report were to ascertain the antineuritic properties of the voluntary muscle of the ox, sheep, and hog when fed to pigeons in connection with polished rice. Forced feeding was used in the experiments, the meat employed was of the best quality. The rice was the ordinary polished rice of commerce. When symptoms of polyneuritis developed in the birds, they were promptly fed dried yeast, to which treatment most, if not all, the affected birds responded readily. It is interesting to note that birds with the acute type of the disease yielded to treatment much more readily than did those with chronic forms.

The results of the work indicate that ox muscle has a much lower antineuritic value than hog muscle. If meat were to be the sole source of vitamin B in the diet, or even the most important source, pork would be preferred to beef. Given an ample supply of the vitamin B from other sources, the antineuritic properties of beef, pork, and mutton become a matter of minor importance.

The method of investigation with edible viscera was practically the same as with the voluntary muscles. Several of the internal organs were found to be particularly rich in vitamin B. The heart appears to be the richest in this vitamin, but the liver and kidneys have only slightly lower values. The other organs contain smaller quantities of the vitamin, but the study proves that this class of products is an important and economical source of vitamin B.

Sunlight Treatment of Surgical Tuberculosis*

CERTAIN forms of radiant energy, notably the ultraviolet and x-rays, have received considerable reputation in therapeutics. "Sunlight in comparison with these radiations," says A. Rollier, medical director of the heliotherapeutic institution at Leysin, Switzerland, "has received but little attention." But little explanation can be offered for this except that man has a tendency to attribute particular virtue to rarity. The prescriptions of medieval physicians contained such ingredients as tongues of adders and skins of toads. We now know that air and water (with a little soap) are much more useful guardians of health than a whole pharmacopeia. Sunlight is another cheap and universal tonic deserving of much wider application than it at present receives.

The virtues of sunlight have not, however, passed unnoticed through the ages. Writers on medical subjects in classical antiquity made frequent references to the therapeutic action of the sun. Even as early as the days of Herodotus the dangers were understood of exposing cachectic patients to the sun's rays during the heat of summer. The dark ages naturally saw heliotherapy sink into disuse, but by the middle of the eighteenth century sunlight again interested the medical profession. Faure, in 1774; and Bonnet, in 1845, renewed its use. More recently it was taken up by Poncet in Lyons, France, in his effort to avert the great number of recurrences after brilliant surgical work in tuberculosis. Berhard in 1902 used insolation in the treatment of wounds.

It was in 1903 that Rollier opened at Leysin the first clinic for the systematic treatment of surgical tuberculosis by heliotherapy. From the first he considered the action of sunlight upon the whole surface of the body as of more importance than the direct effect of the sun on the tuberculous lesion. During the first few years he used plaster casts for fixation of the affected parts and performed a certain number of excisions. But the efficiency of the sunlight

treatment had been underestimated and operative intervention became more and more rare. Even fixation by means of plaster casts has been abandoned in favor of apparatus which provides sufficient immobility without interfering with access of air and sun to the affected part.

The aim of heliotherapy is to place the debilitated body of the patient in an environment which will in the highest degree favor the recovery of general health and in this way to increase the resistance of the body to tuberculosis. The sun bath, however, is by no means the only factor of importance in this environment. The system of treatment known as heliotherapy attaches the greatest importance to fresh air, which is not only breathed day and night, but comes into intimate contact with the whole surface of the body during a large part of the day. Diet and hygienic habits also have their importance.

The manner in which beneficial effect of sunlight upon the body is effected is but little understood. Sunshine *per se* promotes that contented and happy frame of mind which in itself is conducive to health. It is analgesic. Painful symptoms soon disappear even in cases in which rest alone has been insufficient to produce the effect. Though the amount of energy absorbed from the sun and the manner in which it is utilized by the body are not explained, opinion seems

to lean to the belief that the red rays, rather than the violet rays, are to be credited with the tonic effect which restores the functions of the anemic skin, and produces the splendid muscular development which takes place even in patients who are confined entirely to bed. Whatever complexity of heat stimulation, of electrical or chemical phenomena are involved, function is restored in cases where it could scarcely have been hoped for.

There are great individual differences in the adaptability of patients to this form of treatment. The procedure is initiated with great care and progressive insolation carried on in strict accord with the tolerance of the patient. Exposure always begins with the feet, the legs, thighs, abdomen, and thorax, following in this order named, with an interval of a varying number of days between each. Only a few minutes of exposure are permitted at first, but the amount is gradually increased until the patient is able to expose the whole body to the sun for several hours daily without any inconvenience in summer or winter.

Heliotherapy may be carried out in any place where the sun shines, but different places show great variation in the quality of the sunlight. High altitudes are preferable, where the air is transparent, free from solid particles, and easily traversed by the sun's rays without absorption, so that



Clinique "Les Frênes" Leysin. One of the first institutions of Dr. Rollier, specially built for the purpose of heliotherapy.

*The materials for this comment are from A. Rollier, M.D., medical director of the heliotherapeutic institutions at Leysin, Switzerland. Reference is made to the following articles:

Sun. Its Place in the Treatment and Prophylaxis of Tuberculosis. Brit. J. of Tuberculosis, xvi, No. 1, pp. 1-13, 1921.

Heliotherapy in the High Alps. Lancet, cc. No. 12, pp. 582-584, 1921.

Construction of an Institution for the Heliotherapeutic Treatment of Surgical Tuberculosis. Tubercle, ii, 241-250, 1921.



Clinique "Les Chamois" Leysin, 4,500 feet above the sea level, the highest of Dr. Rollier's institutions.

they warm and invigorate the body of the patient while leaving the air cool and fresh. For this reason a much greater intensity of direct sunlight can be borne at high altitudes, and heliotherapy may be practised in mountainous regions every month of the year. In giving directions for the location and construction of an institution for heliotherapeutic treatment, Rollier directs that a place more or less protected from winds be chosen where there is as much sunlight as possible and where the air is sufficiently bracing. The ideal height is between three and five thousand feet.

The construction of palatial buildings for such an institution is by no means necessary. Excellent results may be achieved with improvised arrangements. It is merely necessary that climatic situation and management conditions be fulfilled. There are three types of buildings at Leysin. The first heliotherapeutic institution was a converted mountain chalet, an annex being provided with balconies so placed as to receive the sun's rays the whole day. Solariums were built where balconies were inadequate, each solarium being equipped so that patients can be taken to it without leaving their beds. On the second type of building at Leysin, a converted tourist hotel, a solarium was constructed on each floor on the southwest end of the building.

The third type of building at Leysin is of interest as it was arranged entirely with a view to practise heliotherapy on Rollier lines. The building consists of a central block and

two large wings. The control block faces due south. It contains on the ground floor consulting rooms, radiographic and radiotherapeutic departments, rooms for orthopedics and phototherapy. The bacteriological laboratory and offices are also housed here. On the first floor are the dining room, billiard and smoking rooms. On the fourth floor there are rooms for surgical dressings and an operating theater. This latter room is used only for non-surgical infections. Operative interference in tuberculosis is minimal. The left wing of this

building faces slightly east of south. The balconies of the different floors are terraced so that the light falls perpendicularly. They are but little sheltered from the wind and sunlight and are therefore more suited to slight cases and to those already used to the cure. In summer the sun-cure begins here in the short hours of morning.

The right wing faces considerably west of south. Each room has a private balcony, separated from adjacent ones by movable screens. The balconies are covered. The duration of sunlight is of course shorter, but to make up for this they are more sheltered, this being an advantage in winter. On the first floor all balconies are reserved for children. The partitions are removed so children can play together and enjoy the entertainments provided. A teacher attached to the sanatorium gives lessons on the balconies. These lessons take place in the sunshine and fresh air. Except in cases of quite young children, boys and girls are kept separate.

To arrange for the relative shortage of sun balconies, an extensive solarium covers the whole roof. Patients are brought up on a lift in their beds. All floors are exactly on a level so that beds can be wheeled easily without jolting. The patients are wheeled everywhere on their beds, to the smoking room, moving picture theater, etc. The beds are high, to prevent interference of balcony rails with sun cure or view. They are fitted with large solid wheels (14 inches in diameter and one-half inch thick). Special



Heliotherapy in Dr. Rollier's institutions. Clinique "Les Frères," Leysin: a children's balcony for the sun-cure.

mattresses are provided, very hard, in order to prevent the patients taking a bad position as may happen with a soft, springy mattress. The spring mattress is constructed of strips of metal with wide spaces which assure permanent aeration of the mattress. The patients soon come to prefer the hard mattress to a soft bed. The beds are fitted with movable shades, so that the head of the patient can be shaded whatever position he may be in. Linen strapping is depended upon for the required immobilization so arranged that it can be opened and closed so as not to interfere with sun cure.

An important accessory to heliotherapy is the work cure. It is considered at Leysin that the moral condition of the patient suffers in inactivity and that regular, but not tiring work is desirable. Strictly supervised activity forms a mental stimulus that is highly beneficial. An open air school is maintained as an ideal half-way house for the convalescent and for preventive work in the predisposed. The school work is subsidiary, its object being merely to keep the mind in discipline. The use of very light folding desks and stools makes it possible for lessons to be held in the fields and the woods, the site being chosen according to the heat of the day. Much attention is given to Swedish drill, as proper chest expansion and nose breathing are regarded by Dr. Rollier as a very useful prophylaxis against a multitude of diseases. The school has abundantly proved that there is no surer way of building up the body's resistance than



"Preventorium" for children predisposed to tuberculosis, otherwise known as the "School in the Sun, Les Noisetiers," at Cergnat near le Sepey.

life in the open air and sun. "Until we apply this knowledge to the conditions of our everyday life," states Dr. Rollier, "tuberculosis will continue to exact its heavy toll of victims each year." The results obtained in the open air schools give reason to believe that in almost every case the disease may be completely eradicated before any manifestations take place, thus avoiding much suffering and expense.

The bill requiring all applicants for licenses to practise medicine to know something of physiology, anatomy, and pathology, has been defeated in the Minnesota State Legislature.

Prevention of Hospital Fires

It is startling to learn that, during 1919 and 1920, 870 fires occurred in institutions classified as hospitals, asylums and sanatoriums,—an average of more than one fire a day in that type of institution. If any structures should be properly protected, those in which human beings lie incapable of self-protection should be given first consideration, states the *Journal of the American Medical Association*. Among the causes of fire in these institutions were, first, sparks on the roof; second, defective chimneys and flues; third, lightning; fourth, heating installation, and fifth electricity. These etiologic considerations point the way to prevention, but there are further special considerations which apply to hospitals. The height of hospital buildings is a matter for concern; ambulatory patients should be placed on the higher floors, the lower floors being reserved for those completely bedridden. In every hospital, there should be located fire alarm boxes for prompt notification in case of fire. Volatile liquids which are easily inflammable should be handled with caution. Chemical extinguishers should be easily available, and a fire drill for the employees should be regular experience. "When it is realized," says the National Board of Fire Underwriters, "that most fires are preventable, and that there are none too many hospitals, it seems a pity that owing to the neglect of fire prevention measures large sums must go annually toward replacing what might have been conserved for further usefulness."



Heliotherapy in Dr. Rollier's institutions. The solarium-roof at Clinique "Les Frères."

University of Cincinnati Dormitories*

EVERY possible means of sanitation taking in all modern features are being installed in the new dormitories of the University of Cincinnati. The dormitories, both within and without, have been planned so as to create a feeling of contentment among the students who will live there, and through this, aid materially in the quest for knowledge during the four year course of school. The dormitories will enjoy to the utmost sunshine and fresh air as they will be isolated from the college buildings, and yet will be well within the rolling campus of Burnet Woods in which the school is located. Burnet Woods is one of the most picturesque parks in Cincinnati and affords a wonderful setting for one of the few municipally owned universities in the United States. Burnet Woods abounds in fresh air as it rests high on one of Cincinnati's seven hills and is beyond the pale of any manufacturing district, consequently assured of freedom from smoke and grime of the latter.

The dormitories are planned and being built as a continuous group of separate units, forming two large hollow squares, with entrances to the courts or quadrangles by means of large vaulted passage-ways.

The buildings will be of four stories, designed after English collegiate architecture, the walls comprising mingled shades of red brick and stone colored terra cotta trimmings and with a mottled green slate roof, forming a pleasing yet dignified style of construction. The units will each contain approximately forty

rooms in which sixty students will be housed as half of the rooms will be single and the other half double. Three of these units, together with a memorial tower, are now being erected on a low hill south of the gymnasium building in the southeastern part of Burnet Woods, and with the completion of the twenty-two individual houses, there will be an ultimate capacity of 1,137 male students.

A memorial tower will dominate the entire group as it is to be 84'-0" high from base to parapet, with the first floor containing a memorial room dedicated to the students who served during the World War.

Although the buildings will be heated with a vacuum system of steam heat, at least 25 per cent of the rooms will be provided with open fire places. Each and every room will also have large windows of casement sash and weather stripped, in order to secure full advantage of openings when so desired. Rooms and halls throughout will be covered with mastic flooring, laid over concrete, thus assuring a sanitary and elastic flooring. Each room in its make-up will provide a capacious closet, plate rack, a metal bed, desk table and two chairs together with electric ceiling and lamp outlets. While there will not be individual telephones each floor will find a talking instrument on it with buzzers in the rooms as a means of notification. A large toilet room will be provided on every floor with showers and other fixtures of modern type surrounded by walls, partitions and wainscoting of pure colonial gray marble. An office will be on the first floor off the main en-

trance near the memorial tower for the custodian and in which all outgoing and in-coming mail will be handled. With the completion of these buildings it is hoped not only to provide living quarters for out-of-town students at a minimum cost, but also create college spirit which seems to be lacking at U. C. With students eating, sleeping, talking and studying "U. C.," the alumni hopes there will be engendered at Varsity the same clannish spirit and atmosphere that prevails about the larger colleges in the East. There is being completed a stadium about Carson Field, one of the most natural amphitheaters in the country, and this together with the dormitory is looked upon as a sure source of real dyed-in-the-wool college spirit. Commodious, comfortable, architecturally interesting, grouped to assure a maximum of efficiency in matters of administration, and to afford sunlight to all rooms, the dormitories meet every present and future need of the student community.

The dormitories were designed by Harry Hake, architect, and Charles H. Kuck, associate.

The council of Esmeraldas Canton, Ecuador, has signed a contract with an American engineer for the construction of a sewer system, drinking-water system, fire hydrants, and electric lighting, to be installed within two years, reports the *Bulletin* of the Pan American Union. The Canton of Vinces is also to have electric light and sewer systems for which taxes will be levied on each vessel or small boat entering the port of Canton beginning January 1, 1923.



The new dormitories of the University of Cincinnati rest high on one of the city's seven hills. They are being built as separate units, forming two large hollow squares.



Entrances to the courts or quadrangles are by means of large vaulted passage ways. Each unit will contain approximately forty rooms. All rooms are provided with large windows.

*Materials presented through courtesy of Walter Brinkman, of the Times Star, Cincinnati, O.

Organizing a Student Health Service*

By JOSEPH E. RAYCROFT, M. D., PRINCETON UNIVERSITY, PRINCETON, N. J.

AN APPRECIATION of the value of building up a coordinated and efficient health service is growing rapidly among educational authorities. The number of institutions that have attempted to make additional provision for safeguarding the health and working efficiency of their students is increasing yearly. The character of the organization set up for this purpose varies in some respects in almost every institution, due to differing conditions.

Whenever the organization of a student health service is discussed, there instantly arise two troublesome questions: What will be its relations to the work and the men in physical training and athletics? where is the money coming from? Too frequently the answer results in adding a new cog, which is independent of others, in the student health machine. In some places the hospital service is quite distinct from every other phase of institutional life that may affect the health conditions. In others the dispensary service is separate from, and under other management than, the hospital service; and neither has any affiliation with the routine physical examinations made by the physical education department. In still other instances there is no relation to competitive athletics either as regards supervision of contestants, treatment of injuries, or decision as to the length of time that should elapse between discharge from the hospital and return to training and competition.

This lack of coordination in matters that affect physical welfare, is the rule rather than the exception, and stands out in marked contrast to the administration of the classroom subjects.

The existence of these conditions in various combinations serves to make the development of a satisfactory health service uncertain and difficult. For this reason a constructive discussion of two or three of the outstanding points of difficulty may be of interest.

The first point has to do with the financial support for a dispensary and hospital service. This should be neither so expensive to the student as to limit his use of it, nor should it be on a charity basis. We will agree also that the plan of financing the work

Student health service gets its value from the fact that it conserves selected groups within the selected group of the best youngsters in the country. Social investment in health should not lag behind social investment in general education.

The care of student injuries on the athletic field is herein depicted as a specialty. Shall any less than the best judgment of our best medical men determine who shall train, who shall be denied athletic activities, and what measures and apparatus are requisite to restore the student jeopardized by field and gymnasium activities?

should be such as to permit the authorities to make a dependable budget from year to year. It is a serious question whether the institution is justified in using any of its current funds for hospital service, even if most of them were not running an annual deficit in the regular budget. I do not wish to be understood as opposing the provision by the institution of an adequate plant for the health service—I refer simply to the budget for maintenance and administration; nor do I think that the plan of charging a fee, even a small one, for each treatment by the health service is desirable or practicable. On the whole, the most desirable method of financing such a service seems to me to be through an annual health fee which is collected with tuition, laboratory fees, etc. This may be regarded as a form of health insurance, which will entitle the student to such medical or minor surgical treatment as may be necessary, and which places the poor student on the same basis as the one of wealth so far as this service is concerned. The hospital should be administered on a democratic basis, students being assigned to ward or private room according to the nature of the case. The fee will cover all expenses incident to sickness except those of an exceptional nature, *e. g.*, operating room charges for operations requiring full anaesthesia, a nominal fee for x-ray pictures or for special nurses. Since all students are on the same basis, no one will hesitate to go to the hospital or dispensary for treat-

ment. Over 87 per cent of the students made some use of the infirmary at Princeton last year. Other advantages of this plan are that a very small percentage of the students will go to the town physicians, which means more complete information about student sickness and more perfect control of contagious cases; the number of students for the next year can be pretty closely estimated, and the budget can be worked out accordingly. The plan outlined above has been used at Princeton for years, and the health fees, plus the income from a small endowment, have been sufficient to meet the expenses of the hospital, including salaries of medical, nursing, and housekeeping staffs.

Many of us have had the experience of being sick away from home, or of visiting a youngster who was sick at school or college. It's a lonesome situation. An allied service that is most valuable under such circumstances can be rendered by a visiting committee of faculty ladies or others in the community who can be of the greatest help in little friendly ways to both the patient and his visiting parents. At the same time they can greatly relieve the frequently overworked staff of certain personal services to visiting parents and friends of the sick students.

The second point has to do with the type of physical examination, and the way in which it can be conducted so that it will serve both medical and physical education needs.

The physical examination of new students should lay special stress upon several important points:

(1) A record of previous sickness; injuries; eyestrain; tendencies to cold and constipation; rate of growth; habits of living; sleep; exercise; experience in various physical activities, sports, games, etc.,—all this by way of history.

(2) Observations of a sort that deal with functions should cover heart, lungs, kidneys, eyes, ears, etc., as opposed to measurements, which might be limited to height, weight, and chest mobility. Observations should be limited to those that are useful; all others should be omitted and the time saved for such conference and personal advice as may be indicated by the individual examination.

(3) Cards that contain records of

*President's address at the meeting of the American Student Health Association, December 26, 1922, New York City.

special conditions should be designated by clips of various colors, so that cases of a given kind—heart, kidney, etc.—can be easily distinguished from normal records, and so be always available for “follow-up” examinations and conferences by either the medical man or the physical director. This scheme for distinguishing types of conditions is most useful, and makes the examination a much more valuable factor in the follow-up and preventive work of the general health service.

Still another point of importance is to work out a method of making the observations so that the examination may render the greatest service to both the medical and the physical education staffs. This can be accomplished by dividing the items of the examination among various examiners, according to their special interests, *e. g.*, a series of stations in adjoining rooms; in the first, height, weight, chest mobility, posture, feet, spine, taken by a member of the physical education staff; in the next—a dark room—eye, ear, nose, throat, hernia, by a medical member or a specially trained layman; in the third, heart, blood-pressure, lungs, kidneys, general condition, by a medical member; then to the gymnasium floor and the swimming pool for the physical efficiency tests, and swimming and life-saving test. Each examiner will make his own notes, give such advice as may be necessary, and will attach a tab for future reference. The last medical man checks the whole examination, sums up the advice, lays out a special program, or makes appointment for later report and conference if necessary.

This plan of examining and indicating special conditions simplifies and stimulates the follow-up scheme, which increases the value of the whole procedure, and enables anyone, with a minimum expenditure of time, to keep in touch with the progress of special cases.

This examination record follows the student to the infirmary, where it serves to put the attending physician in touch with the normal condition of his patient, and frequently gives him valuable information. When the student is discharged, a record of the sickness, its kind and duration, is made on the card, and serves as a guide for advice as to resumption of physical activity and methods for avoiding a recurrence of certain sicknesses, such as gastro-intestinal, respiratory, etc. This is a most effective method of teaching hygiene, as well as of keeping students fit to work.

The last point which I wish to stress is the relation of the health service to the supervision of competitive athletics, and the care of the injuries received in athletic activities. Here is a point where the newly installed health service is likely to run into trouble. Even where the institution is fortunate enough to secure for its health service men whose ability in medicine and surgery is outstanding and acknowledged, the trainers and rubbers are likely to regard with suspicion any suggestion that looks toward lessening their authority and responsibility for the condition of the teams and for the care of the injured. As a result, in many instances even where there is a team physician, the care of injuries is empirical and inadequate. I do not need to emphasize to this group the very great value of prompt and proper attention to an injury whether bruise or sprain. A relatively brief delay in instituting proper treatment frequently means a considerable loss of time and the difference between complete recovery and partial disability. The treatment of minor pus infections is frequently such that only the splendid defensive powers of the man in training prevents serious results. When these defensive powers are weakened by local injury or by general staleness the bad treatment bears its full fruits of extension of infection and prolonged incapacity.

The fact that there are trainers who are using effective methods in the treatment of these conditions is not overlooked, but they are greatly in the minority. But whether the fault lies at the door of the surgically ignorant team physician or the trainer or rubber, the fact is that much of the attention given to injuries received in athletic activities is very bad. This is not an easy situation to correct for the reasons mentioned a moment ago, but the great increase in athletic sports and games, involving as they do, many more students than was true even a few years ago, emphasizes the necessity of reorganizing this whole business of the care of athletic injuries and giving the students the right sort of treatment at the right time. It must be recognized at once that the ordinary doctor without special training is not generally competent to handle these cases successfully. The situation calls for familiarity with special measures and apparatus. The fluoroscope and the x-ray pictures should be freely used; electric baths, diathermy, and hydrotherapy can be provided with the fees that are paid surgeons whose services

are otherwise needed to correct conditions due to bad or delayed treatment in the beginning.

The point is this: Here is a situation that in many cases is handled in a way that is as obsolete as the midwife practice of obstetrics. Involving as it does the welfare of the best youngsters in our institutions, it should be handled under the supervision of the health service by the best men that can be obtained. The same principles obtain in the decision as to whether or not a student may take part in athletics, or as to when he may return after an illness. Correction of these conditions will depend largely on two factors: the recognition by the institution of its responsibility to bring about improvement, and the personality of the doctor and his tact in dealing with the athletes and trainers all working for improved methods, the proper coordination of treatment and the protection of the student. Society's investment in the relatively small number of people who get as far as high school and college in educational training, is too great to be jeopardized by ignorance or neglect on our part. It's not easy to set up an effective system of teaching and protecting student health, but success richly repays the effort.

Carbon Monoxid Recorder

Work of the Bureau of Mines on the ventilation of vehicular tunnels has developed the need of an instrument to record continuously carbon monoxid over a range of concentrations up to about 10 parts in 10,000. For this purpose an instrument has been designed at the Pittsburgh, Pa., experiment station of the bureau, using multiple, differential thermocouples with a catalyzer between the junctions to cause carbon monoxid to combine with oxygen of the air. The heat of reaction produces across the thermocouples a potential difference which, as a measure of carbon monoxid concentration, it is proposed to record with a recording potentiometer. When the instrument is set up it will be calibrated with known mixtures of carbon monoxid in air. If it proves practicable, the instrument will also be useful around mines, blast-furnaces, metallurgical and chemical plants, gas making plants or wherever carbon monoxid creates hazards.

Careful research has shown that in a factory where 300 are employed (75 per cent being women) that 80 per cent of the total will use the lunch room.

An Effective School Design at Wayzata, Minnesota

By EDWIN H. BROWN, HEWITT & BROWN, ARCHITECTS, AND CHAS. L. PILLSBURY COMPANY, CONSULTING ENGINEERS, MINNEAPOLIS, MINN.

THE question of a new school building at Wayzata arose very suddenly owing to the fact that the previous building, like its two predecessors, burned to the ground in the middle of a school year. The school board, the chairman of which was Mr. J. E. Spencer, showed their wisdom as business men by engaging their architect at once before any set plans as to the new school should be carried out. At the same time a scheme was put on foot for consolidating a number of school districts in that vicinity and having the people vote the necessary bond issue for erecting a school appropriate to their needs. All of this was carried through successfully, and the architects were put to work to solve the school problem for Consolidated District No. 144.

As in all country districts, the load of taxes caused by expensive school buildings may be heavy and here, again, the school board showed its wisdom and farsightedness. As the architects were in thorough accord with the ideas laid down by the school board matters proved not too difficult. Roughly, the fundamental idea of both the school board and the architect was that a school building was needed which would give adequate housing for the number of pupils that were expected, with a reasonable allowance for growth, the children to be housed in amply lighted, well ventilated rooms, and the too great number of so-called modern specialties in education to be kept in the background, but the primary fundamentals of education, the "three R's," to be emphasized.

Then came the interesting problem

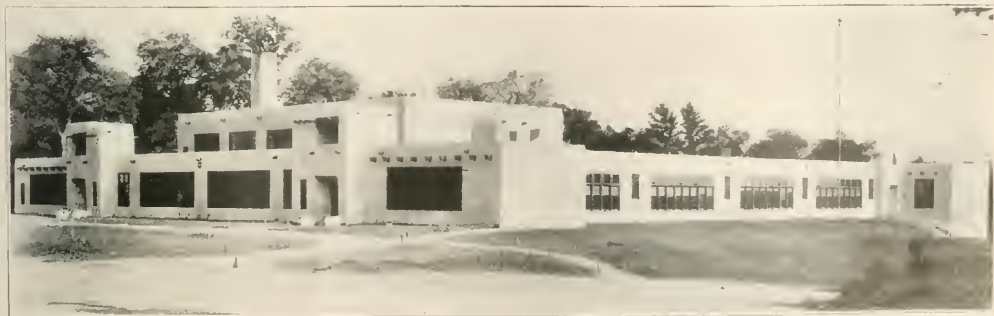
of getting a building large enough for the needs within the appropriated sum of money. Preliminary plans were put out for a typical standard type of three story school building, which it was found impossible to build for the money required. Then two stories were tried, then a very simple arrangement of a one story plan was worked out and, figuring that this could be accomplished for the sum of money, the architects were instructed to proceed, plans were finished, specifications and all of the necessary details for the complete and finished job were put into the hands of contractors for bidding in the late fall of 1920. To the gratification of all concerned the building came well within the limit set, the contracts were let, and the school finished ready for the pupils to move in by September, 1921. Contrary to the usual idea that a one story plan, owing to the great area it covers, is a more expensive type to construct this type of building proved the reverse. This is undoubtedly due in the main to the following reasons; lighter foundations, simplicity of corridor space, lighter walls, saving of space by the omission of large stair walls, and the simplicity of heating layout.

The foregoing explanation is made to help the reader to realize the problems confronting the designers of the school and the natural bearing they have upon the results. After the sad experiences with previous buildings, it was necessary that the building should be fire-proof, so that in the final analysis of the construction and the conditions of the site on the top of a hill commanding a wonderful out-

look over Lake Minnetonka and the surrounding region, the building was constructed without a basement, except that necessary for the heating and ventilating plant. After the bids were taken it was found possible on one side of the hill to put another story below the main floor of the south end of the building. This was added to the building at a very small expense and will give extra space for expansion of the school at a later date. General construction of the building is as follows:

The entire main floor is a solid reinforced concrete slab upon light concrete foundation walls. Above this slab the main division of the floor was constructed of hollow building tile with white Portland cement, plastered on the outside and plastered, of course, throughout on the inside. The roof, being flat and having no requirements for space for machinery or pipes other than the conduits to carry electric wires, was built of wood, covered with an asphalt roof so that it is impervious to fire from the outside. The ceilings of the rooms were then covered with metal lath and plastered so that the fire hazard of this wooden roof is practically nil, and to all intents and purposes the building is fire proof.

In the design of the exterior and carrying out the design of the interior the architects fell back upon the principles of primitive American architecture untouched by the more recent developments in architecture throughout the rest of the world. The building follows the general architectural feeling of the Pueblos of New Mexico and Arizona. With its large interior



The problems involved in the Wayzata school exerted a marked influence both in design and construction. It disproves the notion that the one-story school is necessarily an expensive type.



A typical class room. In all study and class rooms the lighting is unilateral. Every class room where children sit or live has sun in it at some time of the day. Only the domestic science room is cut off from direct sunlight.



The school being largely a community center, a community room is provided near the entrance. Here the local organizations hold their meetings. When more space is desired, the space can be augmented by combining it with the gymnasium and domestic science rooms.

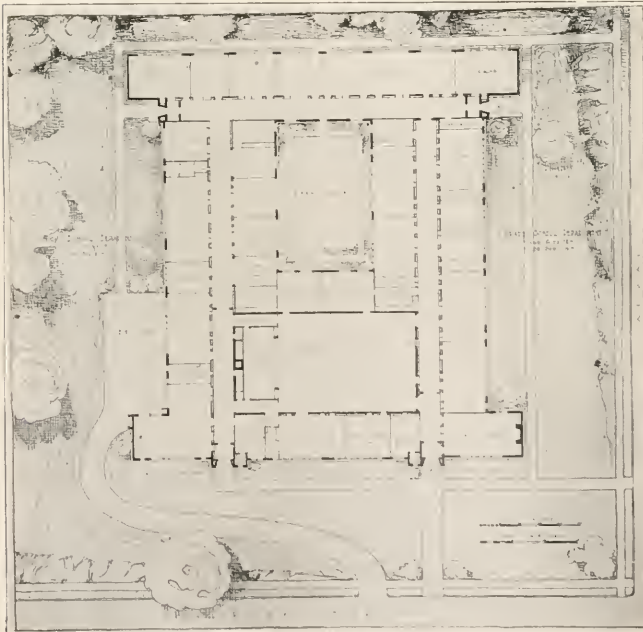
court and the low parapet walls every room in the building has ample lighting, and in all the class rooms and study rooms this lighting is unilateral. Every class room where pupils sit or live has sun in it at some time of the day, the only rooms which do not have sun light during the winter months being the domestic science room, and in our long summer days in Minnesota

the sun comes in there in the early morning and late afternoon.

Feeling that the school is largely a community center a special room was designed near one of the entrances as a community room, and this was pleasantly fitted up so that it would be attractive and desirable. Here the local woman's club and other organizations hold their meetings and

gatherings of the community take place. You will note from the plan that this is so arranged that the big combination auditorium and gymnasium and the domestic science room can be opened and utilized while the rest of the building is shut off, so that large gatherings and entertainments, games, sports, etc., are available to the community. As a matter of fact, the gymnasium is used every night in the week by classes of different ages and the school has taken a very definite part in the community.

The health of the children in the school is a very vital factor, and the severe winters of Minnesota, wherein for many weeks there is a chance of the weather being below zero, make the problem of heating and ventilating a most important one. Windows and doors cannot be opened. All entrances to the school must have vestibules, windows must be weather stripped and have storm sash, and all precautions taken to keep out the cold and wind. The general idea of heating the building was that under every window should be set enough radiation to maintain a proper temperature under practically all conditions. In addition to this was the installation of a very large plenum fan to supply fresh air to every room in the building throughout the working hours of the school. If all this air were taken from the outside in below zero weather and then heated and put through the different school rooms and exhausted into the outer air, no school board could afford to pay the heating cost for the winter's work, so that arrangements had to be made whereby the greater part of this air, sometimes as high as eighty per cent,



Built on a side hill, no basement is provided except for heating and ventilating plant. The slope of the hill permitted adding another floor for future expansion of the school. The building and plan follow the general architectural feeling of the Pueblos in New Mexico and Arizona.

would be recirculated through the school rooms. This meant that the air must be thoroughly washed and cleansed before being sent about through the school. The large fans send the air in two directions around under the corridors and from there force it up through the central partition walls and discharge it into the rooms near the ceiling. In every one of these rooms are outlets near the floor where the air leaves the rooms, and passes up through ducts into a large return duct over the corridor. From here it is returned to the fan room with proper automatic arrangements for taking in the fresh air supply and exhausting the foul air into the atmosphere according to the needs and temperatures. The result is a well ventilated building throughout with washed air and that degree of humidity which is necessary to the health of the pupil.

Being in a small village, where there was no central water supply and no central drainage or sanitation plant, a deep well was installed with an automatic electric pump delivering the water into pressure tanks, so that running water is provided for the air washer, the showers, the toilet fixtures, drinking fountains, kitchen, etc. All the sewage is handled through a large septic tank.

Minnesota has unusually definite requirements for the building of its schools and any school building in Minnesota must conform rigidly to the minimum requirements.

It might be said in closing that this Consolidated School serves as primary and high school and is operated along the general lines of what is known as the six-three-three system, six grades in the primary school, three in the junior high and three in the senior high.

After all the best test of a building is its use by the community and by the people in charge of it, and the excellent care taken by the Board of Education in the personnel of its teachers and the upkeep of this building and the grounds plays a large part in the ultimate success of the building.

Correction

The article on "Tuberculosis Patients as Health Educators," by Robert J. Wilson, M.D., which appeared in the March issue of THE NATION'S HEALTH was incorrectly attributed to the Bulletin of the New York City Department of Health. The article was published by courtesy of the New York Tuberculosis Association Bulletin.

Factors Relating to Suicide

DR. JOHN RICE MINER is the author of No. 2 of the Monographic Series of *The American Journal of Hygiene* (July, 1922) on "Suicide and its Relation to Climatic and Other Factors." The first part of the study, statistical survey, is summarized as follows:

(1) The general trend of suicide rates has been upward during the last century, but the higher rates especially tend to become stabilized. A factor in the upward trend is found in the decay of the group spirit. The European war has produced a sharp decline. The trend of suicide is in the opposite direction to the general death rate.

(2) Germany, France, Denmark, and Sweden show high suicide rates; the British Isles, Norway, Netherlands, and the south and east of Europe show low rates. These differences persist in the United States among immigrants, whose suicide rate is, however, much higher than that of home country. Japan and China have high rates, India low. In the United States, rates are lowest in the south, highest in the west.

(3) The maximum frequency of suicide occurs in May or June, the minimum in December or January. This appears to be an effect of weather *per se*.

(4) The lowest suicide rates are shown by the Greek church, followed by Roman Catholics and Protestants. Jewish rates have increased rapidly.

(5) Urban suicide rates are higher than rural.

(6) Suicide is more frequent among males in occidental countries, but among females in India.

(7) The suicide rate increases in general with the age, but with diminishing velocity. The female rate comes nearest to the male in adolescence.

(8) In general the married show lower suicide rates than the single or widowed. The divorced have high rates. Parents show lower rates than the childless.

(9) Suicide rates are low among farmers and others engaged in steady manual labor in the open air, while the professions (except the clergy and teachers), officials, capitalists, soldiers, innkeepers, and migratory laborers show high rates. Low economic status, when stable, is associated in general with low suicide rates.

(10) In western Europe mental disease is the most frequent motive of suicide. Both mental and physical diseases are increasing in importance as motives.

(11) The usual order of preference as to methods of suicide is hanging, drowning, shooting, cutting. Males show a greater disposition to hanging, cutting, and shooting; females to drowning, poison, throwing self from height, and asphyxia.

The second part of this study is based on the method of partial correlation. Analysis of the data of 174

American cities by this method fail to show any significant net correlations of suicide with mean per cent of sunshine, altitude, mean temperature, industrialization, or the number of negroes. Low, but possibly significant, correlations were found with low precipitation, density and general mortality, and high mean age. The correlation of suicide with the proportion of males was found to be $+ .41 \pm .04$.

General mortality was found to have no significant correlation with climatic factors, age, proportion of males of industrialization, but did show a low correlation ($+ .24 \pm .05$) with density and a high correlation ($+ .62 \pm .03$) with the proportion of negroes. A positive correlation was found between the proportion of negroes and precipitation and temperature but not with sunshine. Racial and economic factors probably influence this result.

"The fundamental factors underlying differences in suicide rates are probably (1) differences in strength of the group spirit, (2) adverse economic changes, (3) racial factors, (4) health of population."

Part three of this study is a bibliography of the subject containing the names of more than 350 authors.

A Town Score Card for Study Courses

The University of North Carolina Extension Bulletin for October 16, 1922 is devoted to an outline of town study for those interested in civic development. An accompanying score card for town studies allows out of a total of 1,000 possible points, 75 for sanitation and housing, and 100 for public health. The plan is particularly adopted for the use of communities desiring to conduct a self-survey.

The subdivisions listed under sanitation and housing are: inspection of congested and neglected areas, sanitary inspection of housing and factories, disposal of garbage and sewage, the supervision of building and construction, town-wide plans for cleanliness and filth prevention, and other factors.

Under public health are listed: a system of medical inspection service, adequate hospital services either in or near the town, food, meat, and milk inspection, child welfare services, laboratory services, and a statistical service for publicity and direction.

Good Health Habits Created Through Play

BY JAY B. NASH, SUPERINTENDENT OF RECREATION, OAKLAND, CALIF.

TO BRING out the close relationship between good health and constructive play, perhaps it would be well to tell briefly the aims of the Oakland Recreation Department. The major aims are universal physical efficiency, citizenship training and wholesome leisure-time habits; the provision of wholesome, healthful play for the children of the city, and the stimulation and guidance of adults in the use of leisure-time.

"Cooperation" is the watch word; it is due to cooperation with the Board of Education, primarily, that the progress of the play and recreation movement has been so rapid. At the present date there are fifty-four playgrounds operated in the city, thirty-four of these being school playgrounds, ten park playgrounds, the rest, tennis courts, golf course and lake playground. In 1907 there were two playgrounds in Oakland, in 1909, five, and on up the ladder until the present number has been reached. The school playgrounds are operated jointly by the Board of Playground Directors and the Board of Education. Expense for the maintenance of these grounds is divided as equally as possible between the two boards. The park playgrounds are maintained entirely by the Recreation Department, while the tennis courts are operated in conjunction with the Board of Park Directors.

The children reached in play programs each day numbered 35,000 in 1922, including the work of the physical education department of the city schools as well as after-school activities. The after-school group numbered 5,768. Recreational activities on Lake Merritt were attended by 170,422 persons. Permits were issued to 1,546 baseball teams. The number of baseball teams playing was 3,092.

With the first suggestion of spring, track takes hold of the boys. Each school has an inter-class meet; groups of schools have inter-school meets; and the big events are the city track meets—one for the younger and one for the older boys. Here each boy has a chance to try himself out against all the other boys of the city, both in track events and in marching. Each school is judged carefully in the posture parade, and the three schools getting the highest percentage of perfect posture in marching are awarded banners.

Girls' play days for the girls are planned and held at one of the larger park playgrounds. Special emphasis is placed on inter-class and neighborhood play days. Each program includes a posture parade, singing games, stunts, folk dances, baseball, volley ball, net ball, nine court basket ball, kick ball, long ball, bat ball and relays. Soccer and tennis are played where facilities are available.

In 1920 it was decided to abandon the old idea of one gigantic May day held at one of the city parks. Playgrounds were encouraged to give their own celebrations, and groups of playgrounds united in giving neighborhood May days. Last year from twelve to eighteen fêtes were held, many of the grounds uniting. Each one was a beautiful spectacle of child activity, enjoyed by the entire community.

STATISTICS FOR 1921-1922

	Number	Participants	Spectators
Pageants	4	5,000	40,000
May days	22	2,500	25,000
Play days			
Older girls	1	900	1,800
Younger girls	1	1,400	4,000
Neighborhood	28	8,000	5,000
Track meets			
Older	1	2,550	5,000
Younger boys		1,700	3,000
Neighborhood	25	7,500	5,000
Evening Recreation Centers	Permits Issued		
Outside organizations	840		58,650
Department clubs	664		45,000
Lake Merritt Activities:			
Adult Baseball Teams	1,546	34,000	350,000
Football Teams	130	3,850	200,000
Picnics		35,620	
Tennis courts	60	105,600	

Good posture, neatness and cleanliness are emphasized in the posture parade. Thirty-five inter-class play days were held including all girls above the fourth grade. Twenty-eight neighborhood play days and two city play days were also held.

In 1919 the Recreation Department definitely entered the industrial field for the purpose of stimulating the spirit of play among the workers in Oakland's various factories and plants. Volley ball was the opening wedge in introducing sports during



Play Day is the gala event of the Oakland school girls. Calisthenics, dances and games are the order of the day.



City boys play farmer at the Autumn Festival, a delightful picnic-day in Mosswood Park.

the noon hour. Basket ball and baseball have gained a foothold, while some of the industrial plants have installed tennis courts, and in one a miniature golf course has been prepared for the employees. Both men and women workers participate in these sports. Tournament cups have been presented for women's volley ball; baseball schedules are arranged, swimming classes organized, rowing crews trained for the annual regatta, under the supervision of a special director for the women workers. A sports carnival is given each year in the municipal auditorium with all the plants represented for competitive games. A girls' auxiliary to the Industrial Athletic Association of Greater Oakland has been formed. Dancing parties are given in the community club houses during the entire year. Much has been done in this line to create wholesome leisure-time habits as well as a better spirit among the workers.

Sixteen baseball fields are available each Saturday afternoon and all day Sunday from 9:30 in the morning until 5:30 in the afternoon. Teams of working boys and men keep these diamonds filled to capacity on all the clear days. Permits to use the grounds are given out in the office of the Recreation Department, each team being allowed two hours' play. About 1,546 permits were given out during the past year, with approximately thirty-four thousand men and boys enjoying the great "national game."

We are very fortunate in having a

beautiful lake with an area of 160 acres in the very heart of the city. Here the children and adults of the city are encouraged to use for rowing the forty-two whaleboats which are available. Crews are organized on many of the playgrounds, and there is practice once or twice a week preparatory to the regatta which is given once a year. The Oakland Women's Rowing Club is an old organization open to all Oakland women. It has four active crews entering the regatta. Approximately 170,422 women and children used the facilities at the lake last year.

A municipal golf course is in the process of preparation. All the grading has been done and the ground seeded, and play will begin in the spring. It will be open to the entire city, with each player paying a small monthly membership fee that will make the course self-supporting. A club house with lockers, showers and lunch facilities is planned, and an over-night camping ground is contemplated. The course will consist of eighteen holes at the present time with possibilities for adding eighteen more in the future.

In the way of camping facilities already established, Oakland has a mountain camp in the Sierra Nevada Mountains. This is known as the Oakland Recreation Camp and is located on the middle fork of the Tuolumne River, 157 miles from Oakland in the Stanislaus National Forest, Tuolumne County. The camp is run on a cost basis, \$23.25 for adults and \$15.65

for children for a two weeks' vacation—this including board, lodging, and transportation. A water supply, permanent buildings for dining, office, cook house, store houses, a sanitary system and tent platforms have been put in, and the guests are housed in canvas tents. Swimming, fishing, hunting, hiking or "just plain loafing" are all possible. Groups of children under the supervision of capable playground directors, together with families from all parts of the city visited the camp and enjoyed a good mountain vacation. Last summer 1,835 children and adults of Oakland visited the camp for one, two or more weeks. A Save-For-Vacation campaign is organized every winter to encourage children and adults to save for a summer vacation somewhere.

An In-town Camp is carried on in the hills back of Oakland, where over-night hiking parties and week-end camping trips are enjoyed. Campers carry their own blankets and other equipment, but the camp is well provided with drinking water, fireplaces and latrines. The new golf course is ideally situated as a hiking objective from Oakland and it is planned to provide elaborate over-night accommodations there for campers and hikers. It is hoped to have a girls' camp also, maintained along the same lines as the Boy Scout camp in the foothills of Oakland.

There are numerous open-air fireplaces located in the park playgrounds of the city where coffee pots, weenie sticks, spoons, tin cups and other conveniences are furnished. One of the parks, Mosswood, is equipped for large parties. Tables and benches for about five hundred are available. Here county organizations hold their reunions, Sunday schools hold picnics, and numerous other large groups meet.

Launch parties up to one hundred can be accommodated on the lake, where launches and suppers may be arranged at the tea room. There is also a tea room in Mosswood Park. At both places lunches, suppers, and banquets can be arranged.

Nowhere is hiking more popular than in Oakland. Young and old take part in healthful and pleasurable trips to the hills in the bay district. Trips are taken by groups of children from the playgrounds and very often a community hike is planned for the people living around the playgrounds. The Contra Costa Hills Club is an organization that gathers into its membership many hiking enthusiasts, with the Recreation Department co-operating. Outdoor clubs for women are active on

four of the park playgrounds, while tennis has become very important as a "hold over" sport both with children and adults. Much stress has been put upon this game. Every child in the city above the fifth grade has been reached in the past year, with instruction given by two special directors. Tournaments have been arranged and played off, clubs have been formed, and everything possible done to encourage young and old to learn the game.

With the growing stress which is being laid upon the axiom "exercise is the price of life," the importance of the vigorous outdoor exercises of the playground increases. Our country is in danger of becoming a people of "button pushers and lever pullers," and it is a common trait of all men to be just as lazy as circumstances will allow them. With additional emphasis upon these vigorous outdoor activities we may possibly find in the years to come a decided reduction in children's disorders. It may so greatly reduce these disorders that we will not find necessary all our elaborate corrective program.

The Question of Garbage Disposal in Boston

The question of garbage disposal in Boston has been a controversial one for many years. The present practice of reducing the garbage and dumping the other wastes on land was severely criticized by special commissions in 1908 and 1910 but when the old contract expired in 1922 a special commission of which Health Commissioner Hoodward was chairman, recommended that the city enter into another ten year contract with the garbage reduction company. A recent report by Mr. George A. Johnson¹ indicates the present system in very vigorous terms emphasizing the practical difficulties involved in the separate collection of garbage, ashes and rubbish and the nuisance created by the reduction plant on Spectacle Island. He believes that the present collection costs are unnecessarily high, particularly in those districts where collection is carried on by the city itself rather than by contract, and he strongly recommends that the city come to some agreement with the reduction company by which the contract can be broken. The alternative process which he proposes is the construction of eight incinerators of the type which has proved so successful in Montevideo and the burning in

these incinerators of mixed refuse with the use of power for electric lighting. The figures given in Mr. Johnson's report show slight discrepancies, but as we understand them the table below indicates the collection and disposal costs under the proposed plan as compared to the present system.

	Proposed Plan		Present	
	Gross	Net	Plan	Saving
Collection..	\$54,000	\$64,000	1,326,000	461,000
Disposal ..	\$64,000	\$66,000	454,000	\$8,000
Total	1,178,000	1,230,000	1,780,000	549,000

Mr. Johnson believes, as these figures indicate, that the cost of collection can be very substantially reduced by having it all done by contract and by shortening the hauls through the construction of eight destructor plants. He also believes that incineration will prove more economical than the present disposal system, but this later conclusion rests, as will be noted, on the assumption of a very substantial return from the use of the steam produced, a return which has never been realized in any American city.

The Montevideo plant has been recently described in a special report by George F. Stall to the Common Council of the city of Milwaukee under date of September 6, 1922. It is a high temperature incinerator of the "Balmer" type which differs from other incinerators in the general simplicity of arrangement and in the provision of special storage bins through which the forced draft is conducted to eliminate the possibility of odors. The Montevideo plant during its first year of operation consumed 151 million pounds of garbage and refuse at an estimated cost of \$0.53 per long ton and with marked freedom from nuisance.

Examination of Food Handlers in Dallas

An ordinance of the city of Dallas, Tex., requires of every person who handles food or drink of any kind a health certificate showing that such person has been examined by a reputable physician and found free from communicable disease. A Wassermann is required once a year if found negative, otherwise more frequently. Smears for gonococcus are taken whenever necessary.

According to Dr. W. T. Davidson, director of Public Health, "A separate budget is made for the food handlers' unit, which is under the division of communicable diseases. A fee of one dollar is required for the complete examination which is just about enough to bear the expenses, there being one doctor, one nurse, and one clerk."

A note in *Public Health Reports*, March 2, 1923, called attention to a habeas corpus proceeding in which the Court of Criminal Appeals of Texas held valid the ordinance under which this work is carried on. The person who sought the writ of habeas corpus was the proprietor of a meat market who had been convicted for having worked in the establishment without having a health certificate.

Tennessee Reorganization Bill

Bill No. 183, known as the Reorganization Bill was passed by the Tennessee legislature in February. By its provisions the State Board of Health with its secretary and executive officer was abolished and in its place has been created a Department of Public Health with a Commissioner at its head. Under the Commissioner is a Superintendent of Vital Statistics, Superintendent of Rural Sanitation, Bacteriologist and Sanitary Engineer. The Maternity and Child Welfare and Venereal Disease Control Divisions were omitted from the organization scheme but it is probable that both of these will be reinstated when the legislature takes up the miscellaneous appropriation bill during the second half of its session.

Chicago Dental Services



Underwood & Underwood

The Chicago Dental Society is at last getting under way the extended program that its men of vision have been working out for the past several years. At Cook County Hospital a five-chair all-day clinic will be established to take care of the 6,500 children going through Cook County Hospital every year, and the thirty thousand children who pass through the juvenile court. No other effort in prevention and cure of the ills that come from neglected teeth has been undertaken on so thorough a basis or on so wide a scale.

1. Abstracted in the Boston City Record, Saturday, March 3, 1923.

Physical Educators Hold Annual Convention

THE 30th Annual Convention of the American Physical Education Association was held in Springfield, Mass., April 11-14, 1923. The first day was given over to registration and inspection trips. Busses were provided to transport the delegates to local high schools, junior high schools, elementary schools, and open air schools, whose equipment and methods of physical training were inspected by many of the visitors. The trip to the Springfield Y. M. C. A. College proved popular.

The first general session of the association was held in the Springfield Auditorium, Wednesday Evening. Mayor Edwin F. Leonard extended a welcome on behalf of the city and Superintendent James H. Van Sickle on behalf of the local schools. Dr. J. H. McCurdy, director of normal courses in physical education, International Y. M. C. A. College and secretary-treasurer of the Association, then introduced Pres. Carl L. Schrader, state director of physical education in Massachusetts. President Schrader said in part:

Education the world over is in a turmoil and of new theories and systems there is no end.

Out of the whole, if one reads correctly, there is one general objective, one general hope which permeates all, and that is that the individual shall have equal opportunity to reach his possible goal, rather than that all have an equal chance for a common, often an impossible goal. The road to this goal should at all times lie within view of the realities of life, making contact all along the way.

The junior high school, which is a remarkable reaction in educational lines, has opened up a great opportunity for the physical line of education. How prepared are the teachers to make this necessary contribution to the junior high school? A great many places where the junior high school has taken root, have unbalanced programs. Either they have put into effect the evils of the high school athletics, or have reverted to the stilted types of physical education in the lower grades. These places have not yet heard of well balanced physical education program.

In the colleges there is an unfortunate division between the major and minor sports. Any sport that is not a major sport is considered a sort of "also sport." Inasmuch as none of the team sports last much beyond the school or college career, nothing but the minor sports so-called, remain for the professional man.

Every distinct type of activity attracts a distinctive type of individual. The football type of boy, for instance, is rarely found among the gymnast and the other way around. This is true of nearly all kinds of sport.

In the minor sports there is a great deal of the fundamental exercise for the development of muscle to be used either for grace or skill. All specialization in physical education must be based on the generalization of both, to be intelligent and to be safe. We must determine what is the natural activity of a pupil and do all in our power to develop him in this line, still maintaining a well-balanced physical development.

The second day was opened with a general session on the topic of organic efficiency. Prof. E. C. Schneider of Wesleyan University spoke on "Physical Efficiency and the Limitation of Measurements of Efficiency." He spoke of the present wave of interest in measuring the mental and physical capacity of mankind and of the great difficulty in getting tests that were real measures of fitness for muscular exertion, and not a measure of some byproduct of fitness. Prof. Schneider continued:

Different jobs will require different degrees of fitness, but so far as the workers of each kind are concerned the work must be a "normal load" for them. I believe that our best definition of fitness is found in our understanding of a normal load, a crest load, and an over load. With a normal load the oxygen account balances.

With the crest load it still balances but the adaptive mechanism, the breathing, the circulation, the blood, and the unloading of oxygen are all working at top-notch capacity and are unable to increase further the delivery of oxygen; and with an overload the oxygen account does not balance, it is overdrawn. It is obvious that for the steady work of day after day such over-drafts are impossible. He who desires to reach the maximum crest load must resort to physical training.

In speaking on the "All or None Theory in Relation to Muscular Exercise," Percy G. Stiles, Professor of Physiology at Harvard discussed the newer conceptions of the nature of nervous stimuli and of the possibility that there are relatively favorable and unfavorable frequencies of vibration in the number of fibers brought into action. Since we are no longer permitted to think of any intensified outflow of nervous impulse from the brain when struggling against fatigue we must think of a diffuse outflow, which conception is supported by the spread of activity to muscles other than those we seek to control.

The closing address of the session was on the subject of the "Relation of Internal Secretions to Physical Efficiency." Dr. Frank A. Hartman of the Physiological Laboratory, Buffalo, N. Y., discussed the part played in

muscular activity by the secretions of the pituitary, thyroid and adrenal glands.

The Public Schools' Section, the College Directors' Section, the Industrial Section, and the Women's College Section held divisional meetings in the afternoon.

The Annual banquet of the Association was held at the Hotel Kimball on the Evening of April 12th. Dr. Stephen H. Olin, acting president of Wesleyan University was the principal speaker. He said in part:

American colleges and universities fifty years from today will expect a student who has completed his course of study to be a real scholar rather than a "learner of some particular science or the art of making a living," according to the speaker.

Colleges have scrapped the scholar, but happily they have created the athlete. I hope that sometime the colleges are going to reassert themselves as moral and mental guides in our country and require certain standards of scholarship and certain subjects for instruction. I am not opposed to the program of athletics in colleges and universities, but believe that scholarship should not be lost sight of. Athletics have done great things for American educational institutions, one of the most important of which is establishing more friendly relations between neighboring colleges.

Courtesy and civility will be developed in collegiate athletics as the years pass. It is to be deplored that members of two college teams, in the middle of a contest, occasionally resort to discourteous language. Physical education instructors are beginning to insist on a more "gentlemanly and scholarly" attitude on the part of their pupils in athletic contests.

Following Dr. Olin's address last night, Dr. Dudley B. Reed, physical director at Chicago University, presented Dr. James H. McCurdy, dean of the physical education department at Springfield College, a gold watch in a specially engraved case, in recognition of the services of the Springfield man, as a member of the Council of the Association during 1922.

At the general session held Friday forenoon the topic was Nutritional Efficiency. Prof. G. B. Affleck of the International Y. M. C. A. College summarized the examinations of eleven thousand children in the public schools of Springfield who have been examined six times during the last year and a half. Some of the conclusions drawn from this study at its present stage are:

Despite the effects of the height-weight tables they are of value in detecting the vast majority of undernourished children.

The height-weight tables give no indication of the causes of malnourishment in the underweight groups.

During the months of August to November inclusive, pupils usually gain half or more of their annual increment in weight.

There is a very slight gain, or maybe a loss in weight during April, May and June.

There is a decreasing percentage of pupils in A and B groups, both boys and girls in the upper grades of the elementary schools.

There is practical equality in the nutrition rating of the two sexes.

Pupils of Assyrian, Hebrew, Greek and Italian parentage are the nationalities having the highest percentages in nutrition classes A and B.

Pupils of Irish, English, American and Scotch parentage are the four lowest in percentages in groups A and B.

The school with the highest average nutritional rating has an Italian enrollment of 78.6 per cent.

The average percentage of pupils of Springfield schools in nutritional groups A and B, according to the Emerson scale is: September, 1922, 71.1; December, 1922, 79.6; March, 1923, 78.0, or an average for the three consecutive surveys of 76.2. Emerson's estimate for the country is 66.0 per cent.

The second paper of this session by H. C. Sherman, Professor of Food Chemistry at Columbia, dealt with "Nutrition and Vigor." The speaker grouped the chief types of food according to their nutritive characters as follows:

(1) Breadstuffs and other grain products—economical sources of energy and protein but not satisfactory in their mineral and vitamin content.

(2) Sugars and fats—chiefly important from the nutritional standpoint as supplementary sources of energy, although some fats are also important as sources of the fat-soluble vitamin.

(3) Meats, including fish and poultry—rich in protein or fat or both, but showing, in general, the same mineral and vitamin deficiencies as do the grains and breadstuffs.

(4) Fruits and vegetables—varying greatly in their protein and energy values, but very important as sources of mineral elements and vitamins.

(5) Milk—important as a source of energy, protein, mineral elements and vitamins; the most efficient of all foods in making good the deficiencies of the grains and in insuring the all-round adequacy of the diet.

Prof. Sherman again urged that it must be more widely recognized that a full quart of milk a day is required by the growing child in order to support a fully normal rate of growth with the best development of bones and teeth.

The concluding speech of the session was by Dr. George E. Dawson, of the Springfield Y. M. C. A. College. The speaker showed that physical education should become a means of developing a cultured intellect. He further stated that "not only the masses

of the people, but the educated classes, do not think of physical education as having much to do with training the mind, like other departments of education in the public schools and colleges." Physical education may train the mind "by sensitizing the nervous system so as to bring the life consciously into more intimate relationship with its environment; by helping to integrate the factors of consciousness so as to make thinking more effective, and by bringing the body under more perfect control of the mind, and so accomplishing a more perfect control and mastery of the surrounding world."

Dr. Dawson told of studies carried out on the students at the Springfield Y. M. C. A. College for the purpose of determining any possible correlation between physical activity and primary mental functions. If we think of intellect not in terms of information or of acquired culture of any kind, but rather in terms of those primary qualities of intellect that are revealed in the ability to integrate sensation, mental association and action, such ability can be analyzed experimentally by means of tests of reaction time. Tests of 350 of the Springfield college men show that they present a better sight reaction (22 per cent), a better touch reaction (12 per cent), and a better auditory reaction (8 per cent) than does the average man. The tactile and kinesthetic sensitiveness of the physical men was also found to exceed that of the secretarial students. The hand control of the students was found to be nearly three times as accurate as that of the average man and the physical students made on the average less errors than the secretarial students.

In the afternoon the Women's athletic, the therapeutic, the Y. M. C. A., and the playground sections held meetings. During the noon recess the industrial section held a round table luncheon and discussion at the Hotel Highland.

Friday evening was given over to demonstrations of stunts, dancing, tumbling, gymnastic drills, and apparatus work by students of the public schools; an exhibition by the gymnastic team of the Y. M. C. A. College; and a demonstration by the Springfield Y. M. C. A.

The last session, held on Saturday morning, April 14, was in charge of the Athletic Research Society, President Chase presiding. The first speaker was Dr. Ledyard Sargent of the Sargent School, Cambridge, who gave an illustrated talk on the "Sar-

gent Test." Briefly, the Sargent test consists of a simple jump, the height above the floor attained by the top of the head can be easily measured by several simple devices. From this height is deducted the standing height of the individual, giving the so-called "jump" which is the measure of the test. It is not a vascular test as it requires but a second to perform it. It is a neuromuscular test and the ability displayed in it by any individual depends on strength, speed, and driving power—neuromuscular efficiency. There is no possible way of "beating" the test? Slowness is penalized. The test involves a large number of the muscles of the body, is interesting to boys and girls, and has a wide range of applicability. Various investigations carried on for a period of more than two years seem to show that above the high school age the jump is independent of both height and age. No correlation is found between the height of jump and measurements of various parts of the body, and tests on feeble-minded children indicate that mental age is closely related to performance.

Dr. R. K. Atkinson of the Russell Sage Foundation, in speaking on the "Effects of Recreations and Athletic Activities on Subnormal Groups," presented some of the findings of Dr. A. P. Way relative to a survey of eight thousand New York City high school boys. Their performances in various athletic and motor efficiency tests had been analyzed with reference to height and age. The possibility of determining standards of performance for the average, above average, and the under average boys was considered.

While individualization must characterize corrective work in subnormal groups, as progress is made it becomes possible to form classes. The recorded work of representative types and representative groups will gradually evolve standards of practice in this important field.

The 1923 convention of the American Physical Education Association was officially closed with a meeting of the Council at which it was voted to hold the next annual convention in Kansas City, Mo. The council took official action recommending that athletic instructors of girls' and women's colleges take measures to train all of the students in physical culture before attention is devoted to developing varsity teams for intercollegiate contests. The body also approved the resolutions drawn up by the committee on track athletics for girls and women, expressing the same opinions regarding intercollegiate sports for women.

Camouflage in Soft Drinks

THE people depend too much on their eyes and not enough on their intellect in the selection of their beverages, states E. J. Lea in the report on the Bureau of Foods and Drugs in the twenty-seventh biennial report of the state board of health of California. The elimination of artificial color from soft drinks, would, he thinks, solve the whole problem so far as the public is concerned and he recommends amendment of the food laws so that this will become possible.

The report goes on to say with regard to soft drinks:

At the present time there appears to be far more violation of the food law in the line of soft drinks than in any other class of materials under the jurisdiction of the Pure Foods Act. It is true that a certain amount of improvement has been made with regard to adulteration and mislabeling of soft drinks since the food law became effective in 1908. Harmful colors, harmful flavors, and saccharine have been practically eliminated, but by far the greater proportion of soft drinks consists either wholly or largely of imitation concoctions which masquerade as fruit drinks.

The labels of these products are usually designed in such a way that the name of a fruit or the picture of fruit is the most conspicuous part of the label, and frequently they are the only features which catch the eye of the consumer. In some cases, by carefully scrutinizing the label, further information may be found to the effect that the article contains many substances which are entirely foreign to fruit and the analysis of the product may disclose that little or none of the fruit is present.

It is not alone the labels which are deceptive, but extensive advertising, usually more deceptive than the labels, is conducted by the use of bill boards, placards, circulars, newspapers, etc. For example: A beverage labeled "Orange Squeeze" was advertised on bill boards by the use of a picture of a hand squeezing orange juice into a glass. This design prominently featuring fruit was made very attractively by appropriate colors and the natural inference from seeing the advertisement would be that the product consisted essentially of orange juice. The facts in the case are that the fruit drink consisted of citric acid, sugar, water, orange oil flavoring from the peel of the orange, and the entire mixture was colored with coal tar dye in imitation of an orange juice product.

A beverage labeled "Orange Crush," which has also been extensively advertised, was originally composed of ingredients similar to the above. More recently a small proportion of orange juice has been included, but the amount is so small that the finished drink contains less than one-half of one per cent of any product from the orange. The original labels for the

so-called "Orange Crush" contained no information to the effect that the article was almost entirely an imitation. The newer labels, however, declare in small print the various ingredients present, but the advertising of this article on bill boards, placards and in newspapers still carries the idea that the drink is made from oranges.

A beverage labeled "Orange-Nip," "Prepared from Pure Orange Juice," has recently been analyzed by this bureau and found to consist entirely of sugar, water, citric acid, orange flavor and orange peel, coal tar dye and less than one-half of one per cent of orange juice.

Numerous other examples might be mentioned, such as "Orangade," "Cherry Smash," "Grape Punch," etc., which are largely, if not entirely, imitation products.

This subject may seem of minor importance, and yet in the aggregate it has been estimated that the annual expenditure for these beverages in the United States is over five hundred million dollars. The industry has swelled in a few years to enormous proportions. Formerly confined to the small local soda-pop manufacturer and circus lemonade vendor, it now supports numerous large plants, many of which do a national business on an extensive scale.

From the standpoint of healthfulness, toning qualities, and vitamins, soft drinks may be classified in two groups, namely, those which are made of fruit or fruit juice, and those which are not. The soft drinks which really consist of fruit juice are exceedingly scarce. The majority of the drinks are not even "near-fruit" drinks.

Pure fruit juices from certain fruits, such as grapes, loganberries, apples and pineapples, are bottled commercially. These genuine fruit juices are generally carried by grocers, for family trade, and they may also be had in many places, such as dining cars, buffets, hotels, etc., where drinks are dispensed; but the business in the genuine fruit drinks is very small as compared with that in imitation drinks.

There has been a tendency during recent years to label as true fruit drinks certain preparations which contain a minute amount of highly concentrated extract or essence derived from the fruit; the other ingredients, forming the bulk of the drink, being imitation products. These fruit essences do not contain the healthful and nutritious properties of the fruit; they are simply the smell, and their use does not justify the labeling of the drink as a true fruit drink. Many of these concentrated true fruit essences are fortified with imitation essence derived from synthetic ethers.

Some of the so-called fruit drinks are first manufactured in the form of a concentrated syrup, containing a small amount of fruit juice and heavily loaded with coal tar dye. To these syrups the bottler adds an acid solution and then dilutes the mixture many times with water. When these

drinks are finished for consumption the small amount of fruit juice present is diluted to such an extent that it has practically no bearing on the quality or value of the drink. These products, as usually manufactured, contain such a minute amount of fruit juice in the finished drink that they do not justify the labeling of the concoctions with the name of a fruit.

Progress is being made in the manufacture of soft drinks, from genuine fruits without the addition of acids or coal tar paint to imitate the fruits. The University of California has experimented along these lines and at the present time has prepared for exhibition purposes soft drinks made from strawberries, loganberries, raspberries, grapes, oranges and pomegranates.

These beverages are extremely palatable, have plenty of color from the natural fruit, and, above all, they are healthful and nutritious, and their qualities are far superior to those of the imitation products.

It has been fully demonstrated that soft drinks can be prepared commercially from the fruit itself without any imitation ingredients, and that they can be manufactured at a cost which is not prohibitive.

California has an abundant supply of many different fruits, and it seems entirely reasonable and practicable to utilize more of these in the manufacture of soft drinks. Furthermore, the general use of soft drinks made of fruit instead of the imitation products would greatly benefit the health of consumers.

The pure food laws were designed to protect the public and the honest manufacturers. Our experience in the manufacturing, labeling and advertising of soft drinks seems to indicate that the public is not properly advised as to the nature of the soft drinks which they purchase. Artificial color, which, in the case of soft drinks, is usually coal tar dye, seems to be the principal agent that contributes to the deception. Many manufacturers have told us that they could not sell their beverages at all unless they used artificial color and, in fact, some of them have said that they could not continue in business if they did not use artificial color, because the consumers would not buy the drinks which did not have color.

In other words, a drink labeled with a fruit name and composed of citric acid, sugar, imitation flavor and water, without artificial color would not be accepted by consumers, but the identical mixture with the addition of a little artificial color would be favorably received. We are also advised by manufacturers that the word "imitation" on the label of soft drinks practically kills the sale of that drink; while the identical preparation without the word "imitation" on the label would have a normal sale.

Affiliation of Grinnell, Penn and Central Colleges, (all of Iowa) with the school of nursing of the state university, was urged in a recent conference of officials representing the institutions concerned.

Consider the Toothpick

THE toothpick is a small pointed instrument usually made of wood or quill but sometimes of ivory, silver or gold. It is designed to dislodge fragments of food from the dental interspaces. The elegant decree is that it should be employed in private or that when imperatively necessary the operation be performed behind the seclusion of a napkin after appropriate apology.

Some toothpicks are individual, some are enclosed in sterile envelopes but the garden variety is generally placed in an open dish whence they may be extracted post-prandially by diners whose regard for comfort transcends the dictates of good breeding. There are many circumstances of life which are unavoidable but a toothpick is one's own fault.

Anything which will assist in keeping the mouth clean and in preventing dental decay is a useful sanitary adjunct and as such toothpicks in themselves are more to be pitied than blamed. As ordinarily set out on the restaurant cashier's desk, they may, however, become the vehicles of transmission for micro-organisms to such an extent as to more than counterbalance their good effects.

Who has not seen the open saucer of naked toothpicks into which a hand which has just wiped a mouth is plunged! It is well nigh impossible to pick up only one toothpick from the little pile in the saucer. Hence two or more are abstracted and touched by a hand which may be smeared with mouth secretions. One toothpick is retained and the others scrupulously dropped back into the dish. Another customer hurries up blowing his nose. Hastily thrusting a very dirty handkerchief into his pocket, he pays his bill, thrusts his fingers into the bowl and fumbles for a toothpick. Another wipes an eye and reaches into the dish and another puts his cigarette between his lips, which he unconsciously touches with his fingers, and then paws the toothpicks. And so it continues until every toothpick has been touched at least once.

When it is considered that the toothpick goes straight from the dish to the mouth, there to be forced between the teeth, there usually to inflict trauma and perhaps to be finally chewed, it is seen that any living pathogenic organisms on its surface have been afforded on excellent opportunity of gaining entrance to the body and it is conceivable that in this way

influenza and similar infections may be spread.

The remedy is both obvious and simple. Prevent the display of toothpicks in the manner described above. Perhaps after all the polite interdiction against toothpicks in public is a measure of hygiene as well as manners. If so it is to be commended and the custom spread.

Special Instruction for Industrial Physicians

The need of special courses for the instruction of physicians who are appointed to look after the sick in large commercial chemical houses is brought out by a Paris correspondent to the *Journal of the American Medical Association*. He holds that the "factory physician," before taking on the responsibilities associated with the employment and conservation of labor, should acquire special theoretical and technical knowledge in the field of occupational diseases and industrial toxicology.

It will not be necessary to create in the medical schools special chairs for this purpose. All that will be needed will be to adapt certain courses of instruction to this new function and to assign to the professors responsible for these courses the needed collaborators and the means of carrying out this adaptation. The main thing would be to amplify the instruction of industrial toxicology and to develop further our knowledge of occupational diseases. The instruction, however, should not be confined to theoretical lectures on these subjects, but should include practical demonstrations, says the writer.

Professors of medical jurisprudence are, for the most part, members of the councils on public health. They might easily use the influence that goes with their official positions to secure from manufacturers the necessary authorization for their pupils who intend to become factory physicians to visit chemical plants and study conditions at first hand. Students would thus gain a practical experience that would be exceedingly valuable to them, the writer concludes.

Sanitation of Tourist Camps

By ALBERT H. JEWELL, CHIEF ENGINEER, DIVISION OF WATER AND SEWAGE, KANSAS STATE BOARD OF HEALTH, LAWRENCE, KANSAS.

WITH the increased number of automobiles and the growing mileage of good roads, there has been an increase in tourists throughout the entire country and, with the tourist, has come the problem of providing satisfactory camping places. The problem is by no means a standard one and will be found different for each section of the country. For instance, some of our northern states will have a very large number of summer resorters, while in Florida the tourist season is in the winter. In either of these cases, the tourists come with the idea of staying in the camp and making it headquarters for several days, possibly for weeks. In Kansas the problem is entirely different; there is neither natural beauty nor fine climate to appeal to the resorters. However, there are a number of highways which form a link between the east and the west; traversed by tourists bound either for the western coast or the eastern. In the majority of cases these tourists desire to stay over night and be on their way again the next day.

In contrast to this, there are some

who are neither going nor coming, but are using this means to save paying rent, moving from one location to another—wherever they can find a means of livelihood.

Some may consider that it is not the duty of the city to provide facilities for camping. But from the standpoint of public health and protection to the citizens of the community itself, it seems that this is the best way in which to control the situation. If sanitary facilities are not afforded, it will mean that the tourists will camp here and there like gypsies; and the result will be insanitary conditions and the danger of fly infections, to say nothing of other nuisances. The small cost of providing these features can be taken care of by any city, without placing a burden on the tax-payer. In some cases, the business men of the city have financed the proposition, feeling that even from a business standpoint the camp is a good investment.

In considering the tourist camp, the first thing naturally is that of location. If possible, the camp should be located where it will be accessible to

the municipal water and sewerage systems. The municipal water supplies of the state are analyzed at least twice a year by the state board of health and therefore are kept in very good condition and can be used by tourists without any danger of water-borne diseases. If the toilets are connected to the sewer system, this removes the grave danger of fly infection and possible contamination of water supplies. The location should be well drained and where it will not be a nuisance to surrounding property owners. In some cases, the surrounding property may be deleterious to the camp.

If there is no municipal water or sewerage system, it will be necessary to resort to the use of a private well and sanitary fly-proof privies. The well should be properly protected against surface drainage and should be located above any source of contamination and as far away from the privies as possible. Water from private wells should not be used until after it has been analyzed and approved by the state board of health. A tourist should regard all such sources of supply as dangerous or questionable and should either boil the water or treat it with sterilizing tablets for that purpose.

It is very often found that one part of the municipal park can be devoted to a tourist camp, thereby making the water supply and toilet facilities serve a double purpose.

Garbage and trash should be kept in covered, fly-proof cans and removed daily to some remote spot where it can be either burned or buried.

It is impossible to construct a tourist camp that will not need daily care. The best that can be done is to build the camp in such a way as to make this maintenance as easy as possible. In general, floors of buildings should be made of concrete and properly drained and this will facilitate the flushing and scrubbing to keep them in a clean condition. All openings should be screened. Plenty of placards should be placed around the camp directing the tourist as to water supply, toilets, what is to be done with trash and garbage, and where wood can be obtained, and regulations regarding the conduct of the camp. The attendant should also be vested with power to regulate the length of stay. It is not altogether advisable to set a hard and fast rule since in some cases there may be a very good excuse for a tourist to remain several days, while in other cases there might be sufficient reason for not allowing the tourist to stop at all.

There are a number of things which add to the convenience of the tourist not absolutely essential but which can be provided at a minimum expense, such as tables, benches, stoves, shelter houses, sinks, electric lights, wash tubs, clothes lines and shower baths. If flies can be prevented by the proper disposal of waste, garbage, and sewage and if the water supply can be protected from contamination, the camp can be maintained in a sanitary condition with a very reasonable amount of care.

Tourist Camp Sanitation

At a regular meeting of the Kansas State Board of Health, held in the office of the Secretary, Topeka, on February 15, 1923, and under the authority of section 10122 of the General Statutes of 1915, the following regulations relating to tourist camps were unanimously adopted and ordered printed in the official state paper:

Sanitary Regulations of Tourists' Camps.

(1) All camps shall be in charge of an attendant whose duty it will be to keep the camp in a sanitary condition at all times.

(2) All camp sites shall be well drained.

(3) An adequate supply of potable drinking water shall be provided on all camp grounds. Water from wells other than a public supply shall not be used until it has been approved by the State Board of Health.

(4) Modern flush toilets shall be provided where sewer connections are possible.

(5) Where sewer connections are not possible, sanitary, fly-proof privies, approved by the State Board of Health, shall be provided.

(6) All garbage and refuse shall be stored in metal cans with tight covers and shall be removed from the premises and disposed of daily.

(7) Garbage and refuse shall be disposed of by incineration or burial.

(8) Those in charge of camps shall make and placard such rules and regulations as are necessary to govern the use of the camp and keep it in a sanitary condition.

(9) Inspections of tourist camps shall be made under the direction of the State Board of Health as often as practicable and a report of findings made to those in charge. If the recommendations are not carried out and the camp is found in an insanitary condition upon a second inspection, the camp will be declared a nuisance to public health and ordered closed, and shall not be reopened until such time as the recommendations have been carried out.

I hereby certify that the above is a true and exact copy.

Given under my hand and seal the 16th day of February, 1923.

S. J. CRUMBINE, M. D.
(Seal) Secretary and Executive Officer.

Editor's Note.—Under date of February 14, 1923, the author of the preceding article made a report on Tourist Camp Sanitation to the members of the Kansas State Board of Health, with the result that on February 20, 1923, the above notice appeared in *The Topeka Daily Capital*.

Health Conditions in Russia

Reports by Dr. Siemashko, People's Commissary for public health of the Soviet republic, before the Health Committee of the League of Nations at Geneva in January indicate that the public health situation in Russia is still a gravely critical one. Over one million, three hundred thousand cases of typhus fever and the same number of cases of relapsing fever were reported for the year 1922 and, in addition, malaria of a very severe type is spreading. The tuberculosis rate in the city of Petrograd was 370 per 100,000 in 1918, 510 in 1920, and 360 in 1921. The infant mortality rate in Moscow was 330 per 1,000 births in 1919, 225 in 1920, and 265 in 1921.

The Barrel Loader as a Safety Device

Heavy barrels can be loaded in tiers in box cars without danger of their rolling back, by means of a device developed by the Walworth Manufacturing Company of Kewanee, Illinois. As seen in the illustration the loose end of the skid rests on the first tier of barrels in the car, making it unnecessary to fasten this end. The hoist is raised by a two and one-half horse-



Showing the hoist in loading position.

power motor and the barrel rolls into the car. The hoist is equipped with upper and lower automatic stops, making it unnecessary to employ a skilled operator.

The previous method of loading barrels was to roll them up the skid by hand. Sometimes, with heavy loads the barrel would slip, causing injury to the loading crew. Although designed primarily as a safety device, this hoist has proved to be a great time saver as well. It has received favorable comment in the *National Safety News*.

Second Child Health Demonstration

The Child Health Demonstration Committee of the American Child Health Association is receiving applications for the second community to benefit from the Commonwealth Fund appropriation for three child health demonstrations. Fargo, North Dakota, has been chosen for the first demonstration.

The general purpose of the demonstrations is to help the communities chosen in every effort to save the lives of mothers and babies, and to see that its boys and girls develop into strong, sturdy citizens with a wholesome outlook on life. Every phase of child life will be considered and the neglected period between babyhood and school age will be one of the demonstration's chief concerns.

Through all the work that is planned it will be the effort of the committee to assist and not to dictate. The primary responsibility rests with the community and depends in its interest and cooperation.

The committee which will supervise the demonstrations has decided on the following conditions for the selection of the second community.

(1) The area from which the selection will be made includes those states south of the Mason Dixon Line and east of the Mississippi River.

(2) The following types of communities will be eligible: (a) a rural community of not more than approximately 30,000 population, and containing no town of more than 5,000 population; (b) an urban community of not more than approximately 20,000 population.

Nebraska Vegetable and Fruit Budget

Health from the garden, argued in the Public Health Nurse by Louise M. Murphy, describes the program effectually advocated by the Extension Department of the Nebraska State Agricultural College, and gives the reasons why vegetables and fruits must be on the table twice daily, and why certain green vegetables and oranges or tomatoes twice weekly. A "Food Habits Score Card" is issued by the department, and mothers, boys and girls, and college men and women have all alike been surprised at their low score because of the few vegetables eaten habitually.

On the basis of scores made and compared a family vegetable and fruit budget has been worked out on the basis that one-half of our vege-

tables and fruit are obtained from canned, and one-half from fresh, stored, or dried supplies. According to this budget each person should have two servings each of vegetables and fruits daily. Thus there should be: Seven servings of canned vegetables per week; seven servings of fresh, stored, and dried vegetables; seven servings of canned fruits per week; and seven of fresh, stored, or dried fruits.

The budget contemplates one-third cup of vegetables or fruits per serving, and 1.6 servings per pound of dried materials. The service is useful to indicate the number of varieties of vegetables and fruits that should be supplied by the garden of the average family. The score card furnishes blanks for record of the amount of home canning done, and proposes an inventory of the store room shelves in June as a check upon how satisfactory the budget has been.

Thus the dietary becomes the nucleus of all the year round activities, and intelligent planning is en-

couraged to replace the haphazard methods that usually obtain. The work is done with the fullest cooperation with the school nurses in setting up standards which constitute a safe balance in the daily diet.

Compulsory Accident Insurance in Agriculture

In a review of the compulsory accident insurance of agricultural workers in Italy, as provided for by law No. 1450 of August 23, 1917, it is stated that for an eight months period in 1919, for which the most accurate statistics are available, 23.5 per cent of the compensable accidents were due to the handling of tools, of which cutting tools were responsible for 17.9 per cent. Next in frequency came accidents caused by falls, 22.4 per cent. Fifteen per cent could specifically be charged to falls from trees. Transport apparatus was responsible for 15.7 per cent, and animals not attached to vehicles 11.5 per cent. (*Monthly Labor Rev.*, Jan. 1923).

Mental Hygiene in Maryland

SOME of the outstanding accomplishments of the former State Lunacy Commission of Maryland were the bond issues of over two million dollars which made possible the establishment of two new hospitals and the erection of new buildings at the existing institutions which, when the present plans are completed will provide for the entire system of state care; the removal of the insane and feeble-minded from county almshouses and jails and closing all but one of the county asylums; the establishment of a cooperative purchasing committee; the development of after care, reimbursing, and parole departments; a study of mental defectives by both the National Committee for the Feeble-minded and the National Committee for Mental Hygiene; and the completion of a building for the criminal insane.

Under the new state reorganization plan, the State Lunacy Commission with the addition of two members became the Board of Mental Hygiene.

The first report of the Commissioner, Dr. A. P. Herring, outlines the proposed work of the Board. It states that in the past energies have been largely devoted to the housing and custodial care of the insane and feeble-minded, but that there will be within the coming year sufficient accommodations for practically all of

the indigent insane. The report then calls attention to the matter of prevention and the study of medical service in the state institutions.

The proposed plan includes the establishment at the State University of a Department of Mental Hygiene, which would be conducted in the form of a mental hygiene clinic where the physicians from the state institutions would be in attendance, enabling them to come in contact with patients suffering from mental disorders in their incipient stages. An educational campaign is proposed for the purpose of creating public sentiment that will support the Board in its work for better care of the state wards. This campaign would include public talks before County Medical Associations, Women's Clubs, etc. The American Legion would cooperate.

It is also suggested that the Board visit each of the State institutions as soon as convenient and have a meeting of the entire staff of each hospital to talk over the local problems, especially as they relate to medical service, after care and occupational therapy.

The members of the Board are Hugh H. Young, M.D., Chairman, George H. Hocking, M.D., Henry J. Berkley, M.D., J. Albert Chatard, M.D., H. Findlay French, and Margaret S. Brogden.

The Sanitation of Bath Houses

OF ALL types of baths, cleansing, recreational, refreshing, and healing, the cleansing bath is the foremost in importance not only for the health of the individual but for the attainment of a higher degree of sanitation in a community. Describing the cleansing bath, William Paul Gerhard, C.E., says in his booklet, "The sanitation of Bath Houses" published by the William T. Comstock Company, New York:

It is generally conceded that the tepid douche or shower is the most sanitary type of cleansing bath. Second in importance are the baths taken in natural or in artificial pools for physical exercise, for the sake of recreation, for the love of the healthful sport of swimming. Such baths are in no sense intended as cleansing baths. It should be borne in mind that though swimming is one of the best forms of bodily exercise, if the water is badly polluted or the swimming hall overcrowded and badly ventilated it is not conducive to health. The hardening of the body can be accomplished after a warm tub bath by taking a tepid or cold douche administered from either a hand spray or overhead douche.

Healing baths being in the nature of a medical subject are not discussed by the author. Dr. Gerhard continues:

So far as the health of a city or a community is concerned, by far the most important are the people's cheap or free bathhouses. These should be located in the center of populous districts occupied by the working classes and by the poorer people in general. In large cities, obviously, more than one such bathhouse will be required. The ruling principle should be to decentralize the baths. In other words, rather than have one large bathhouse with hundreds of bath units, the large city should establish a number of smaller bathhouses, each accommodating a limited number of bathers. The buildings should have unpretentious exteriors; the interiors should be simple yet sanitary. Monumental buildings, from an architectural standpoint, are decidedly out of place. This criticism may, with some justification, be applied to some of the city

bathhouses erected in the past years.

It is customary to provide in people's bathhouses a few tub baths for women and for the smaller children, but the main equipment should consist of shower baths. This type of bath, the "rain bath," at it is sometimes called, is without shadow of a doubt the cleanest and most sanitary, because the water used in the ablution of the body flows away at once, without the body of the bather staying, as it necessarily does in the tub bath, in contact with the dirty, and sometimes contaminated water.

People's bathhouses should be municipal institutions and they should be kept open during all seasons of the year. It is at least debatable, in my judgment, whether or not to provide this type of bathhouse with a swimming pool in addition to the showers because of the additional cost involved in the construction of a watertight and sanitary pool, and further because of the formidable difficulty of keeping the pool water at all times pure and unobjectionable.

In the interest of municipal economy I have time and again made the feasible suggestion to utilize such rainbaths as are already provided in public schools during the evening

hours for the public at large. This has successfully been done in some of the schoolhouses of European countries. In smaller communities, such rain baths may be located in already existing buildings, for instance in the unused parts of the basement of a town hall, or in connection with a fire engine station, or even in connection with a village library building. The provision of cleansing baths in prosperous villages is a subject worthy of the special and closest attention of village trustees, of civic and health organizations, and of women's clubs.

The bathhouses of the second type have the much coveted additional provision for swimming in the pool. They are either open air baths, available only during the summer, as for example the river baths, the seaside baths, and the so-called wading and bathing pools provided in many city parks, or else they are enclosed bathhouses, heated during the winter season and thus made serviceable during the entire year. Their equipment consists of baths for cleansing, showers, and perhaps a few tub baths, and the swimming pool.

Municipal cleansing and pool baths should, if possible, be free to the public. Where the cost of maintenance is high a small fee might be charged for the use of the pool only, leaving the use of the shower baths free.

The public bathhouse with swimming pool may be a menace rather than boon to the community unless certain sanitary features are observed, states Dr. Gerhard.

As regards location, construction, and equipment, the room should be lofty, well-lighted, and adequately ventilated. The usual standard dimensions of a pool are 25 feet in width and 60 feet in length. A pool of this size has a water capacity of approximately from 78,200 to 106,400 U. S. gallons and is wide enough for five swimming lanes.

The pool should form a perfectly watertight basin. It may be built as a shell of steel, lined with concrete and with waterproofing, or else it may be constructed of stone work, brick work, or reinforced concrete masonry. Proper waterproofing of the bottom and sides is essential. The floor and the side walls of the pool should be finished with non-absorbent, impervious, durable and easily washable materials, preferably of a light color, and usually white. The choice of material lies between marble slabs, glazed or enameled brick, or ceramic glazed tiling. All corners must be well rounded to facilitate cleaning operations.

After a visit of inspection to many European swimming pools the writer suggested lining the sides of pools up to the water line, with light blue glazed tiles, with a darker horizontal border at the water level, and with white tiling above it. Many of the public pools abroad unquestionably owe their attractive appearance to this constructive and decorative feature, not less than to their usually crystal-clear water.



Dressing rooms should be located so that the bathers must pass through the cleansing rain bath before entering the pool.

*For the use of this material and the pictures illustrating the article we are indebted to the W. T. Comstock Company, New York City.

A device which is absolutely necessary to the cleaning of the pool is the scum gutter at the normal water level which serves to remove the lighter floating impurities due to perspiration and other debris. The floor should never slope or drain to the pool but should have floor outlets connected directly with the bathhouse sewer.

Dressing rooms located so that the bather must first pass through cleansing baths before entering the pool are another sanitary safeguard. The partitions of the dressing room should be made of structural opaque glass, of marble, or thin glazed tile blocks.

The most important feature of a swimming bath, from a sanitary viewpoint is not the pool itself but the preliminary cleansing bath. Dr. Gerhard further states. Sufficient attention is not always given to this essential part of a public bath house.

An adequate number of cleansing baths consisting of shower baths with hot and cold water connections, and footbaths should be provided.

To insure greater privacy, particularly for women, during the ablu-tion, which should be performed in the nude, before any bathing suits or trunks are put on, some compartments with light curtains should be fitted up. Partitions should be seven feet high, and may consist of marble or of other opaque and less costly material. The showers should have both upward and downward douche, the latter to perform a cleaning of the perineal region of the body. Free soap, preferably a disinfecting soap, and scrubbing brushes should be furnished by the bath attendant.

The footbaths are as necessary as the showers, yet I have not seen them provided for in any American bathhouse visited and inspected by me, whereas in European bathhouses they are quite the rule. The footbaths consist of either a long single trough, standing free on all sides and having tempered water flowing through it continuously, or they consist of a series of individual porcelain or glazed earthenware fixtures, arranged back-to-back in the center of the cleaning room, which is a more sanitary arrangement.

Much can be done to keep the water in a swimming pool sanitary by an efficient supervision and management of the bathers. A physical examination of the bathers while nude, to exclude



Foot baths, part of the equipment of every European bath, are often lacking in the similar American establishments.

the diseased, accomplishes much good, but it is difficult to enforce except in Y. M. C. A. buildings and in school or military baths.

Rules should be posted in conspicuous places and strictly enforced, requiring all bathers who wish to use the pool, to use the preliminary cleansing baths, and to pay attention in particular to the cleaning of the feet, for which special fixtures are provided and also of the loin regions. The use of soap should be made obligatory. Attention should also be drawn to the toilets provided and the bathers advised to use the urinals before entering the pool. The rules of conduct, posted in all dressing rooms, should state that all expectoration must take place either into cuspidors provided for, or into the scum gutter, but no spitting or blowing of the nose should be permitted in the pool. Offenders of the rules should be excluded from the privilege of using the swimming pool.

Bathers should either enter the pool nude, or wear the sterilized suits provided by the bath establishment. Male bathers may be permitted to wear small triangular loin cloths. Bathing

suits for women must be sterilized after each use, and undyed garments are recommended, as the dye contributes to the discoloration of the pool water. Smoking or chewing tobacco in the bathhouse should be absolutely forbidden.

Brief mention should be made of some details of the equipment of swimming pools, which consist in mechanical or structural accessories but which have no special sanitary significance. Every pool should have one or more descending stairs, usually placed at the shallow end, while ascending ladders may be located at the deep end. Both the stairs and the ladders must be so arranged that they will have no obstructing projections in the water. The built-in ladders are often constructed in concrete and lined with tiling. While the scum gutter usually performs the function of a life rail, in some cases a life rail of non-corrosive material is placed above the water surface.

Plumbing fixtures in a bathhouse should be of the most durable and sanitary type. Lavatories should be of heavy vitreous ware provided with "pop-up" waste fittings. Drinking bubble fountains should be of the type having a parabolic or slanting stream preventing the lips from touching the bubble orifice.

The ideal but practically unattainable standard for maintaining a pure water supply for the pool is to empty, clean, scour, and refill the pool once every twenty-four hours. The next best condition is to admit continuously a sufficient hourly flow of pure water (1/10 to 1/20 of the capacity of the pool) so that the water contents are changed at least once in 24 hours, and in addition, to empty and thoroughly clean the pool at least once a week. Cleanliness and cleanly habits of the bathers can eliminate much of the danger and are more important, Dr. Gerhard states, than methods of purifying contaminated water.

Methods of purifying water are by filtration, treatment with hypochlorite of calcium or with liquid chlorin,

ozone treatment, or sterilization by ultra-violet rays. Such treatment usually involves refiltration of water and only a small volume of the water is removed at a time. Moreover filtration does not remove the salts in solution, the ammonia, urine, or other polluting matter dissolved in the water, and in this lies the danger from artificial purifiers.



Interior view of Lurline Baths, San Francisco. Water should be kept level with the scum gutter so that all surface impurities are removed.

Bakers Decide for Physical Examination of Workers

Master bakers representing an out-put of more than three million loaves of bread weekly, decided April 17 at a New York conference of representatives of 150 cities, that all employees of plants under their control will have to undergo a physical examination at least twice a year, and agree to abstain from the use of tobacco during working hours. The resolution affects plants throughout the country.

A Small Town Health Exposition

"Let Health Rule in Bethel" was the slogan adopted by a little town of less than 2,000 population in Ohio, which claims to be the first town to adapt the health exposition idea to a small community.

Perhaps it was because Bethel is located near Cincinnati where the success of the health exposition held in 1921 had not yet faded out of mind that Bethel conceived the idea. The Bethel exposition was held March 18-24. The local *Journal* carried a prominent headline on all of its issues and numerous articles in the most prominent positions on the front page of the paper every issue, showed that the idea sold itself to the community.

Exhibits and a program of entertainment, motion pictures and addresses were held every afternoon and evening during "Health Week." The program started off with a health sermon at each church in the community on the first Sunday of the Exposition. Each grade in the public schools prepared a health playlet or some kind of appropriate health demonstration. This demonstration was the first thing on each program each afternoon and evening. It was followed by an address on the appropriate health subject given by some public health worker or physician from the nearby cities or the State Health Department, and that in turn by a health film related to the speaker's subject.

All citizens were asked to adorn their homes so that the town would present a festive appearance during "Health Week." Merchants were asked to decorate their stores and present special displays of their wares that help promote or maintain the health of the community.

The Exposition was prompted by a group of prominent citizens with the cooperation of most of the leading health organizations in Cincinnati, of their own County Health Commissioner and of the State Department of

Health. Among the special features of the "Health Week" was a demonstration by officials of the State Department of Health in Shick testing to determine immunity from diphtheria.

Cattaraugus County Demonstration

The first issue of the *Quarterly Bulletin* of the New York Health and Tuberculosis Demonstrations reports the steps taken by the Technical Board of the Milbank Foundation since the first of this year, in the development of the Cattaraugus County demonstration. A County Health District has been created with Dr. Leverett D. Bristol as its permanent health officer.

Olean has been chosen as the site of the County Laboratory, the nursing personnel has been increased, and a tuberculosis case finding survey started in the Clinton district of the county. Three scholarships for Cattaraugus County physicians have been offered by the Trudeau School, and a special Committee on Bovine Tuberculosis, consisting of Dr. Theobald Smith, Chairman, Dr. Veranus A. Moore, and Dr. William H. Park, has been appointed by the advisory council. This committee will work with the county authorities in the extension of bovine tuberculosis control measures; a \$6,000 appropriation having been made for the purpose.

Plans for the more adequate control of communicable disease, tuberculosis, and the development of Public Health Education are outlined.

Freezing and Thawing of Food

The preservation of food by freezing, with special reference to fish and meat, constitutes the basis of a study made by Walter A. Stiles and reported in *The Lancet*, its object being to determine the effects of changes which take place during prolonged periods of storage and to discover any detrimental effects from thawing.

Possible changes were studied from the standpoint of evaporation of water, loss of aromatic substances, chemical changes due to autolysis, changes due to the presence of water and oxygen made evident by the development of rancidity, and changes due to the activities of bacteria and molds.

Dehydration was reduced by close packing and by the prevention of air movement, by humidity control, by lowered temperature, and by the use of protective covering. Autolytic

changes are practically negligible during storage. Bacteria, however, survive at very low temperatures and Dr. Stiles points out that it is desirable to gut the large fish before storing them. Whether the vitamin content of food suffers in storage the study does not determine, but it is mentioned that the accessory food factor in butter was not diminished by preservation in cold storage.

The influence on foodstuffs of thawing is not cleared up. The more rapid the freezing, the more likely are the particles of the substances in the solid condition to retain their spatial relationships, and in such cases thawing slowly or rapidly conducted is likely to result in the re-formation of the original system. In slow freezing big crystals of ice may form which produce a separation which remains permanent upon thawing.

Slow thawing, though it gives more time for colloidal re-formation, possesses the objection that it affords more opportunity for the micro-organisms to attack the surface layers of the meat and hence reduced the time the meat can be kept after the thawing is finished.

Concerning the advantages of freezing and chilling as a means of preserving in cold storage, Dr. Stiles holds the advantage of the former to be so great that it should be the object of cold storage research to transfer as many foods as possible from the category of substances to which mere chilling can be applied to the category of foods where preservation is possible in the solid frozen state.

Harvey Dee Brown, who has for the past eight years been connected with the New York State Committee on Tuberculosis assumed March 19 the duties of Director of the Philadelphia Health Council and Tuberculosis Committee. It is to be expected that Mr. Brown's wide experience along tuberculosis, health, and social lines will forward the wide expansion of effort contemplated by the Philadelphia Council.

A bill now before the Connecticut Legislature calls for an expenditure of \$250,000 for the establishment of a psychiatric hospital and an annual appropriation for maintenance. The hospital would be located in New Haven, and Yale University offers to provide the site, funds for the support of a medical staff and for research in the field of mental disease. The hospital would act in conjunction with the Yale school of medicine.

American Association of Hospital Social Workers

A review and forecast of hospital social service is featured in the program of the annual meeting of the American Association for Social Workers, to take place in Washington, May 16 to 23, in connection with the National Conference of Social Work. The changes in hospitals, in administration, and in objectives involved in a service that maintains through the course of institutional and out-patient treatment the ideal of picturing the patient in all his relationships, and returning him to that environment restored as a useful, active unit, are well brought out in the topics arranged for discussion.

Such prominent workers as Misses M. Antoinette Cannon, president of the Association, Janet T. Thornton, N. F. Cummings, and Mabel Wilson are scheduled to recount the very specific studies being made by different sections of the society, while Frankwood E. Williams will outline the requirements of psychiatric social work, and Dr. William Healey, director of the Judge Baker Foundation, will review recent developments in psychiatric social work with children.

One Man Control of State Institutions

In November, 1920, the state Charities Aid Association of New York had ready for publication "A Valuation of a System for the Administration of State Institutions Through One-Man Control as Operated in Illinois." This report was the result of a survey of Illinois institutions made by Henry C. Wright. The institutions of the state had then been under the direction of the Department of Public Welfare (headed by a director) but a short time. It was not surprising that under the administration of the governor who sponsored this type of state control, fairly good results should have been secured rapidly. At that time this system seemed to compare favorably with the more conservative types of control that are common to the eastern states.

This report was completed two months before a new governor was to be inaugurated. Eighteen months after the inauguration (July, 1922) an addendum was written and the entire study published by the Association in November, 1922. On January 1, 1921, New York and Massachusetts had also inaugurated governors. In Massachusetts and Illinois a republican succeeded a republican while in New

York a republican succeeded a democrat. It might naturally have been assumed that there would be many changes in personnel in New York, but during the eighteen months specified no changes took place in the heads of civil state hospitals. In Massachusetts, one retired by age, one died, and both positions were filled from promotion lists. In Illinois four heads of state hospitals were replaced by doctors from general practice, and four heads of other institutions by laymen without recognized qualifications.

The New England Industrial Nurses Association

The speaker for the April meeting of the New England Industrial Nurses Association was Mr. John Garvey, personnel manager of the Dennison Manufacturing Company, Framingham, Mass., on the topic "Is the Industrial Nurse an Asset or a Liability to Industry?"

Miss Sally Johnson, R.N., chairman of the Legislative Committee of the Massachusetts State Nurses Association, discussed pending legislation in which nurses are interested.

The May Meeting schedules Miss Ethel M. Johnson, assistant commis-

sioner of labor and industries to speak on "How Massachusetts Protects Working Women and Children."

Massachusetts Holds Health Conference

Through the cooperation of the Massachusetts Central Health Council, sixteen state-wide agencies, joined forces in a health conference held at Springfield, April 26 to 28.

The practical value of such a conference is readily seen in the correlation of such problems as the relation of infantile paralysis to the public health question, discussed by no less an authority than Dr. Robert W. Lovett; social hygiene, by Dr. Enos H. Bigelow; mental hygiene, by Dr. George K. Pratt; cooperation of all agencies, by Dr. Donald B. Armstrong; community health, rural health, school hygiene, and every phase of individual effort that would be made more effectual through finding its proper place in a concerted program came in for due consideration and expert handling.

The most significant part of the conference was the fact that every agency, voluntary and state, lay and professional, practical and technical, was represented.

Hygiene or Therapeutics?

WE ARE indebted to *Practical Medicine and Surgery* for the following excerpt from "What's Doing in Colorado."

While traveling in the Pacific Coast states recently Herschel H. Hall was taken violently ill with an attack of acute indigestion.

Hearing there was a Chinese doctor in the town, who was highly regarded by the citizens of the locality, Mr. Hall sent for him.

The physician came, felt of the sick man's pulse, inquired briefly as to his suffering and then entered upon the following questionnaire:

"You smokee sli-ga-let."

"Oh, Yes."

"Cigar, too?"

"Yes."

"Pipe maybe, eh?"

"Sometimes."

"You take li'l dlink sometimes—maybe col' pop, col' soda, col' milk shake, col' linger beer, liey-col' lemonade, col' slider, maybe some hot tlea, hot coffee, hot chocolate, lots of sugar and cleam?"

"Sure thing!"

"You eattee fast?"

"I got to, doctor—always in a hurry—lots to do, you know."

"You eattee hot biscuit?"

"You bet!"

"You eattee fly ham, fly bacon, fly eggs, hot clakes, lots molass?"

"I'll say I do!"

"You eattee gleasy stuff—some fly some roast, some boil, some stew, some blake—you mix em' all uppee same time, eh? Maybe some jam and gleasy glavy sametime, eh?"

"Yes, everything goes with me."

"You eattee pie?"

"Pie? Pie is my middle name at mealtime, doctor."

"You eattee some pickle, some cheese, some nut, some nice lich clake, some lice cleam—you mixee all uppee inside same time, eh?"

"Yes, sir—that was the way I was taught to eat at boarding school."

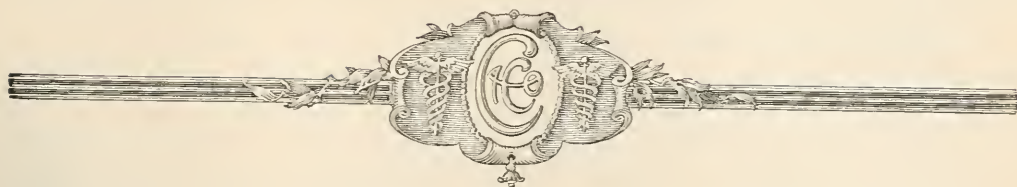
"You dlinke lice water same time?"

"Of course."

"You chewee up wood toothpickce fine, eh, at finish?"

"Usually do—sometimes I have to use a match."

"Good nightee! I can no curee damn fool!"



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Middle West Society of Physical Education

Famous educators, world champion athletes, student health experts, and school physical directors—each with a somewhat different conception of what should be the physical education program in schools—conferred together on the occasion of the tenth annual meeting of the Middle West Society of Physical Education at the University of Chicago April 19 to 21. An attendance of something over eight hundred people attests the universal interest in the subject.

The subject of physical education in general, and the status of the physical educational teacher in particular, were particularly well summarized in a sensible and stimulating address by Professor James Weber Linn of the University of Chicago. The advantages of physical education over other means of education, said Professor Linn, are very great. First, a very definite objective is possible—the development of perfectly sound, perfectly controlled bodies. Where the average teacher has only the faintest idea of what he is trying to do, the teacher in physical education knows exactly what he wants to do, and how to do it.

Notwithstanding the extraordinarily definite need for health and sport-manship, teachers of physical education are subject to a remarkable lack of prestige. Famous men in physical education we have not, said Professor Linn; physical education is a pursuit, not a profession. The demand is terrific; anybody can get a "job" as physical educator. When physical educators themselves impose scholastic background, standard practice, and appreciate as a group the vital relationships of their calling it will be no less professional than economics, medicine, and other sciences.

Necessarily the demonstrations were the nature of "stunts" by picked groups rather than typical examples of average results of mass methods, but they were interesting and illuminative.

The problems of athletics found their best discussion in one of the section meetings by Professor C. W. Savage of Oberlin College, and means of selling physical education to the public, and of appreciating physical educational health values were expressed in terms of psychology of advertising by Harry N. Tolles, president of the Sheldon Correspondence School, Chicago.

Dr. J. Anna Norris, University of Minnesota, was elected president for

the ensuing year and Floyd A. Rowe, Lansing, Mich., re-elected secretary.

N. Y. Public Health Courses Attract High Type Nurses

Analysis of educational qualifications of the 250 nurses who have enrolled for the correspondence course in public health nursing recently opened by Columbia University and Bellevue Medical College in cooperation with the New York state department of health shows that the general educational level among the nurses of New York state is higher than supposed, the department says: Nearly 40 per cent of these applicants have had a four years' course in high school; more than 4 per cent have had at least two years in college.

More than 65 per cent of this group are found to be graduates of training schools connected with hospitals of more than 100 beds and giving a training of not less than two years. Less than 4 per cent have had no hospital training. More than 30 per cent are graduates of training schools giving at least two years' practice, connected with smaller hospitals of less than 100 beds.

The plan of the correspondence course is to introduce the nurse to the whole field of public health in such a way that she will understand the pertinent features of a state-wide public health program.

An Outbreak of Cheese-Poisoning Studied

Outbreaks of illness following the consumption of cheese are of great rarity. An epidemic attributable to this cause was recorded in London in 1901, but the majority of outbreaks recorded have been in America. The main features of cheese poisoning resemble those of poisoning from other infected foods, but one or two minor points of difference are brought out by Dr. H. M. Cameron Macaulay in *The Lancet* in his study of an outbreak of cheese poisoning at Dover in July, 1922.

Cameron does not find evidence of a single fatal case in any outbreak where the circumstances incriminating the cheese have been at all conclusive, whereas in other food-poisoning epidemics the case mortality is in the neighborhood of 1.5 per cent. Another point of difference is that the period of incubation appears to be shorter in cheese poisoning, and the usual food-poisoning organisms are hardly ever found in epidemics due to cheese.

The nature of cheese as a food affords an explanation for these differences. Cheese occupies the unique position of being practically the only article of food prepared many weeks or months before it is intended for consumption and not subjected to any process of preservation during that period. Moreover, bacterial action, so far from being inhibited, is encouraged along definite channels in order to bring about ripening.

This very fact makes it unlikely that in the event of a pathogenic organism being introduced in process of manufacture would remain alive at the time of consumption, the growth of the saprophytic bacteria and molds associated with the ripening process being unfavorable to the growth of the usual pathogenic organisms.

It is usual, therefore, in the rare instances when food poisoning has been attributed to cheese to find the Gaertner organisms present, a group almost invariably associated with an extremely stable toxin, capable of withstanding a temperature of 100° C. for five minutes. Care was taken to exclude the food handlers as carriers. Cheese poisoning, therefore, Dr. Macaulay considers to be a pure intoxication and infection with Gaertner organisms. This theory is in need of confirmation by further study.

National Museum of Engineering and Industry

The Society of Industrial Engineers is responsible for the activities of a committee which is at work formulating a plan or the establishment of a national museum of engineering and industry. A central institution will be provided and branches in different sections of the country will be established as conditions may require. The preliminary studies on the project are under the direction of H. F. J. Porter, 29 West 39th Street, New York City.

Aeronautical Safety Code Now Being Developed

The work now under way in the development of an aeronautical safety code is discussed in *Aviation*. In its complete form it will represent the first edition of the American Aeronautical Safety code. When the sectional committee in charge of its preparation gives it permanent form, it will be submitted to the Bureau of Standards and to the Society of Automotive Engineers before it will go on record as an achievement in a new field of industrial hygiene.

Cantilever Stores

Cut this out for reference

Akron—11 Orpheum Arcade
 Albany—Hewitt's Sub Shop, 15 N. Pearl St.
 Allentown—307 Hamilton St.
 Asheville—Pollock's
 Atlanta—150 Peachtree Arcade
 Atlantic City—2019 Boardwalk (Shelburne)
 Auburn—Carl H. Mueller
 Baltimore—323 No. Charles St.
 Battle Creek—Bahama's Bootery
 Bay City—D. Remell Co.
 Berkeley—The Booterie
 Binghamton—Parier City Shoe Co.
 Birmingham—212 North 19th St.
 Bridgeport—W. K. Mollan
 Brooklyn—414 Fulton St.
 Buffalo—629 Main St.
 Burlington, Vt.—Lewis & Blanchard Co.
 Rutte—Baker Shoe Co.
 Canton, O.—H. M. Horton Co.
 Cedar Rapids—The Killian Co.
 Charleston, S. C.—L. F. Condon & Sons
 Charleston, W. Va.—John Lee Shoe Co.
 Charlotte—221 Piedmont Bldg.
 Chicago—120 E. Randolph St. (Room 502)
 —1059 Leland (near B'way)
 Cincinnati—The McAlpin Co.
 Cleveland—Granger Brothers, 17 Euclid Ave.
 Colorado Springs—Wulff Shoe Co.
 Columbus, O.—104 E. Broad St. (at 3d)
 Dallas—Leon Kahn Shoe Co.
 Davenport—R. M. Neustadt & Sons
 Dayton—The Rike-Kumler Co.
 Decatur—Raup & Son
 Denver—224 Foster Bldg.
 Des Moines—W. L. White Shoe Co.
 Detroit—11 E. Adams Ave.
 Dubuque—L. F. Stamper Co.
 El Paso—Popular Dry Goods Co.
 Evanston—North Shore Bootery
 Fitchburg—W. C. Goodwin, 342 Main St.
 Fort Wayne—Mathias App's Sons
 Galveston—Clark W. Thompson Co.
 Grand Rapids—Herpolsheimer Co.
 Harrisburg—26 No. 3d St. (2nd floor)
 Hartford—36 Pratt St.
 Hot Springs, Ark.—Rosenthal's
 Houston—306 Queen Theatre Bldg.
 Huntington, W. Va.—McMahon-Diehl
 Indianapolis—L. S. Ayres & Co.
 Jackson, Mich.—Palmer Co.
 Jacksonville—Golden's Bootery
 Jersey City—Bennett's, 411 Central Ave.
 Johnston, Pa.—Zang's
 Kansas City, Mo.—380 Altman Bldg.
 Knoxville—Spence Shoe Co.
 Lansing—F. N. Arbaugh Co.
 Lawrence, Mass.—C. H. Woodman
 Lincoln—Mayer Bros. Co.
 Long Beach—Peck Shoe Co., 302 Main St.
 Long Beach—Farmers Bank, 3rd & Pine
 Los Angeles—505 New Pantages Bldg.
 Louisville—Boston Shoe Co.
 Madison—Family Shoe Store
 Memphis—38 No. Second Street
 Meriden—Winner, Kuhn & Co.
 Milwaukee—Brouwer Shoe Co.
 Mobile—22 Eighth St., South
 Mobile—Level Best Shoe Co.
 Montgomery—Campbell Shoe Co.
 Nashville—J. M. Meador & Sons
 Newark—897 Broad St. (2d floor)
 New Bedford—Olympia Shoe Shop
 New Britain—Shoe Bros.
 New Castle, Pa.—229 E. Washington St.
 New Haven—153 Court St. (2d floor)
 New Orleans—102 Baronne St. (R. 200)
 New York—14 W. 40 St. (op. Pub. Lib.)
 New York—Ames & Brotherly
 Oakland—205 Henshaw Bldg.
 Omaha—1708 Howard St.
 Pasadena—175 E. Colorado Street
 Paterson—10 Park Ave. (at Erie Depot)
 Peoria—Lehmann Bldg. (Room 203)
 Philadelphia—1510 Walnut St.
 Pittsburgh—The Rosenbaum Co.
 Portland, Me.—M. C. Van Arsdale
 Portland, Ore.—353 Alder St.
 Poughkeepsie—Louis Schomberger
 Providence—The Boston Store
 Reading—Sig. S. Schwerner
 Richmond, Va.—Seymour & Syde
 Roanoke—1. Bachrach Shoe Co.
 Rochester—143 East Ave.
 Rochester—D. J. Stewart & Co.
 St. Louis—516 Arcade Bldg., opp. P. O.
 St. Paul—12 E. 2d St. (Frederic Hotel)
 Sacramento—205 Ochsner Bldg. (R. 200)
 Saginaw—Gieschel-Brater Co.
 St. Lake City—Mallory Bros. Co.
 San Diego—The Marston Co.
 San Francisco—Phelan Bldg. (Arcade)
 San Jose—Hoff & Ryser
 Savannah—Globe Shoe Co.
 Shenandoah—Parson & Hall
 Scranton—Lewis & Reilly
 Shreveport—Phelps Shoe Co.
 Sioux City—The Pellet Co.
 South Bend—Ellsworth Store
 Spokane—The Crescent
 Springfield, Ill.—A. W. Klaholt
 Springfield, O.—Edw. Wren Co.
 Syracuse—121 West Jefferson St.
 Tacoma—225 S. 11th St. (Ed. Tr. Bldg.)
 Terre Haute—Otto C. Hornung
 Toledo—Laskie & Co. Co.
 Topeka—The Pelletier Co.
 Trenton—H. M. Voorhes & Bro.
 Troy—35 Third St.
 Tulsa—Leon's Shoe Store
 Utica—Room 10, Foster Bldg. (2nd Flr.)
 Washington—1312 F Street
 Waterbury—Howard-Hughes Co.
 Wheeling—Geo. B. Taylor Co.
 Wilkes-Barre—M. F. Murray
 Worcester—J. C. MacInnes Co.
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foot and supports it, leaving your foot free to strengthen through exercise. The natural lines of the shoe allow ample toe room, and the low, medium, or Cuban heel gives your body a healthful graceful poise.

It is unnecessary to pamper your feet in old shoes at this glorious time of year. In new Cantilever Shoes you walk with foot freedom and real comfort.

Cantilevers give you unusual comfort because they are built not only to fit the foot, but to act with it. Natural movement is not restricted, because the Cantilever has a flexible shank which curves up to follow the arch of your

Cantilevers are made in soft, light-weight leathers. Their attractive styles harmonize with Spring costumes. You find good looks as well as comfort in Cantilevers.

Except in New York and Chicago, only one store in each town sells Cantilevers. If a dealer near you is not listed at left, write the manufacturers, Morse & Burt Co., 15 Carlton Ave., Brooklyn, N. Y., for name and address of a nearby dealer, and a new booklet about feet and shoes.



End read by Women's College, Women's Clubs, Public Health Authorities, Physicians, Opticians, Directors of Physical Education, Editors, Stage Celebrities and prominent men everywhere

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Shoe

The Health Situation in California

The recently issued report of the California State Board of Health, covering the period from July, 1920, to July, 1922, is in the main a cheering document, with numerous statistics showing control of disease and reduction of mortality.

Chief among accomplishments are the reduction of tuberculosis and typhoid, and the lowering of the infant mortality rate. In spite of the persistent migration of tuberculous patients to California, the death rate from the disease has been reduced from 216 per hundred thousand in 1906 to 150 per hundred thousand in 1921. Typhoid has become so rare that in some sections of the state a considerable number of practitioners have never been afforded the opportunity of seeing cases. The infant mortality rate has decreased from 160.0 in 1906 to 66.8 in 1921.

The causes to which the improvements are to be attributed are of course numerous and complex. Of primary importance was the establishment of new public health machinery, and increased interest in community health.

When the complexity of California's health problem is considered, great credit is due the physicians for their achievement. The tremendous flow of tuberculous persons into the state, typhus fever ever present on the southern border, and the potential danger in other dangerous diseases from Oriental sources, render the situation unique, to be met with expedients unknown to the scientists of other states.

James A. Tobey to Administer Health Council

James A. Tobey, Washington representative of the National Health Council, has been appointed administrative secretary of the Council with offices in New York City. He succeeds Walter Clarke.

Mr. Tobey is a graduate in sanitary engineering and public health of the Massachusetts Institute of Technology, and of law from the Washington Law School. He has served as health officer of Summit and West Orange, N. J., as representative of the New Jersey State Department of Health, as scientific assistant with the United States Public Health Service, and, during the war, as a first lieutenant in the U. S. Army Sanitary Corps. Mr. Tobey will assume his new duties June 1.

Maternity and Infant Care in Berlin and Stockholm

A picture of the outstanding resources for "Public Maternity and Infant Care in Berlin and Stockholm" has been recently prepared by Elizabeth Phinney Hunt of Bryn Mawr College at the University of Stockholm.

"In Berlin, when an illegitimate infant is born the local city registrars are required to report the birth to the Division of Public Guardianship, which thereupon immediately appoints a public guardian for the child. This guardian supervises the development of the child until it is twenty-one years of age. There are twenty-four public guardians in Berlin, each of whom has in his or her care about one thousand children. It is furthermore the duty of the public guardian to see that the father makes the payment to the mother of the child, that is required by law."

Reference is made to Guinchard who has stated that "in the years 1901-10, 33.6 per cent of the children born alive in Stockholm were born out of wedlock. The 1920 Statistical Yearbook for the city of Stockholm gives the figures for total living born and total illegitimate children. The approximately percentage of illegitimacy indicated by these are: 1902, 33 per cent; 1907, 34 per cent; 1912, 37 per cent; 1917, 30 per cent; 1919, 27 per cent.

Industrial Dental Clinics in Pennsylvania

The close relationship between certain industrial diseases, notably lead poisoning and diseased teeth, was one of the moving causes for the survey made by the Division of Hygiene of the Pennsylvania Department of Labor and Industry to determine the extent of dental service for employees.

Replies were received from fifty-nine industries. Thirty-three plants employing 209,743 persons reported that the total number of employees taking advantage of dental service were 125,222, or 59.7 per cent. Fifty-nine plants employed dentists, forty for full time.

It was found that seventy-five nurses, twenty-six attendants, and twenty-six clerks were employed in all plants for dental service.

The average cost of original dispensary equipment to the fifty-three firms replying to this question was \$1,958.03; the least cost of equipment in one plant was \$328.28; the greatest cost was \$8,000; while the total cost in all plants was \$103,775.46. Cost of operating the dispensary per year per patient was: Average cost, \$3.38; least cost, 30 cents; greatest cost \$27.19.

Fifty-five of the fifty-six firms replying stated that they considered the operation of an industrial dental dispensary a success; one considered it only partially successful.

Copenhagen Serum Institute Laboratory



Keystone View Co.
Laboratory where the cooperative study of sera and vaccines initiated by the Health Section of the League of Nations is being coordinated and controlled under the direction of Dr. Thorvald Madsen.



Examine Your Patients' Feet for Structural Weaknesses

Weak or fallen arches or flatfoot are often the direct cause of many bodily complaints such as fatigue, nervousness, pain in legs, sciatica, painful heel, cramped toes and rheumatic symptoms. Mechanical treatment is indicated along with properly fitted shoes.

Dr Scholl's *Corrective Foot Appliances*

are especially designed on anatomical and approved orthopedic principles to relieve the cause of the ligamentous strain and correct the abnormal posture. Worn inside the shoes, are comfortable to wear and easily adjustable to meet all conditions as presented to the physician.

Sold at Shoe Stores

Better shoe stores in every locality carry the full line of Dr. Scholl's Corrective Foot Appliances and have also been instructed in how to properly fit them. Write us for the name and address of the dealer nearest you, Doctor, and let us

tell you more about mechanical orthopedics of the foot, which subject is attracting so much attention from the medical profession at this time.

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City _____ State _____

Fill out the coupon for your copy of "Foot Weakness and Correction for the Physician"—just published.

The Scholl Mfg. Co.
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Dangers in the Use of Radiant Gas Heaters

Warning that improper combustion of natural-gas in heating appliances in common use may liberate carbon monoxid, is given by the Bureau of Mines, as the result of studies at its Pittsburgh experiment station.

Quantities of carbon monoxid as low as 0.2 per cent may produce death in a short time. For healthy atmospheric conditions in the home, in which the occupants are continuously exposed, carbon monoxid should not be present in amount greater than 0.01 per cent.

As a result of its investigations, the Bureau offers the following suggestions regarding the operation of radiant-fire heaters burning natural gas to prevent liberation of carbon monoxid:

(1) Do not operate a radiant-fire heater so that the radiants glow more than three-quarters the distance from bottom to top. When this rate is exceeded, carbon monoxide is liberated in more or less dangerous quantities.

(2) For all gas flows in which the radiants glow from one-quarter or more of the distance from bottom to top, the adjustment should be made from the needle-valve rather than the gas-cock. Open the gas-cock as far as possible, then close the needle-valve to give the desired gas flow or flame length. By adjusting the gas flow from the needle-valve with gas-cock wide open, the highest possible orifice pressure is obtained, which, as shown, raises the air-gas ratio, increases the completeness of combustion, and diminishes the liberation of carbon monoxid for a given gas consumption.

(3) An over-size orifice should be used with caution, and manufacturers should discourage the use of such an orifice for low gas pressure. A heater is properly made for a given size orifice, so that a minimum quantity of carbon monoxid is produced. When the standard orifice is replaced with an over-size orifice, the air-fuel ratio is lowered, the completeness of combustion is reduced, and liberation of carbon monoxid is increased for a given gas consumption. The greatest danger is that the operator may not change back to the standard orifice when the gas pressure becomes normal, and the heater will then be operated at too high a rate for good combustion.

(4) Since, when burning artificial gas, a larger size orifice is needed than for natural gas, dangers may arise when a heater which has been

used in a region where artificial gas was supplied, on moving to a natural gas region is used without changing to a smaller orifice. In such a case the heater is operated at two to three times its rated capacity, with the liberation of dangerous quantities of carbon monoxid. Two deaths in the Pittsburgh district during December, 1922, were caused by operating a heater (not a radiant type) with an orifice intended for artificial gas on a natural gas heater.

(5) Manufacturers should stamp on each heater sold (this does not apply to yellow-flame heaters), in some conspicuous place where not easily removed, what kind of gas the heater is intended for, such as, "For Natural Gas Only," or "For Artificial Gas Only;" and the orifices should be locked and accompanied by instructions not to change without consulting the local gas company.

(6) Heaters should be of sufficient size to heat a given room at normal rating, rather than of a smaller size and operated at excessive rates. If a radiant heater has an adjustable primary air inlet, to be sure this is as wide open as possible, or better yet remove it and throw it away. (Six deaths in Ohio during

December, 1922, were largely due to having the primary air inlet closed.) For safety's sake buy an over-size heater rather than an over-size orifice. When a period of low gas pressure arises, the over-size heater will then be large enough to furnish sufficient heat without changing to a larger orifice, with its inherent dangers of liberation of carbon monoxid.

(7) Flues on radiant heaters are always desirable. Heaters operated at excessive gas flows, or used with over-size orifices or poorly constructed, giving low air-fuel ratios at the burner ports, should be attached to flues.

(8) Never sleep in a room in which a flueless heater is burning without having at least one window wide open to supply adequate ventilation. This one precaution would have prevented many deaths during the past few months.

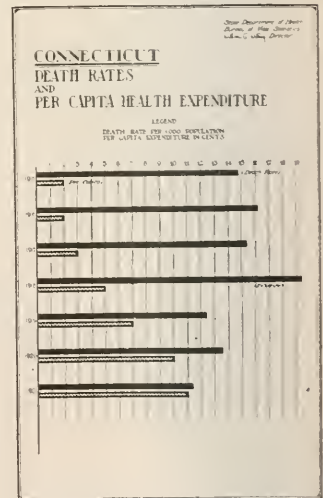
June 26, 27, and 28 have been selected by Dr. Herman M. Biggs, State Commissioner of Health as the dates for the Annual State Conference of Health Officers and Public Health Nurses. The Conference will be held at the Grand Union Hotel, Saratoga Springs.

Health Statistics Evaluated

THE Report of the Connecticut State Department of Health for the two years ending June 30, 1922, states that "Unfortunately the balance sheet of a health department showing lives saved and sickness reduced does not alone impress all with the fact that money spent for health work produces greater return for a dollar invested than any other public expenditure."

Connecticut spent approximately \$2,000,000 during 1921 for the promotion of public health. As a result the lives of 4,700 people were saved or prolonged and many thousand cases of sickness were prevented. "Applying the methods of calculation promulgated by the National Conservation Commission, it is found that the lessened deaths and sickness represent a saving to the people of the state of over \$10,000,000 for the year 1921, as compared with the losses sustained five years ago. The net profit on the \$2,000,000 expenditure was \$8,000,000."

The report further states that if the public sentiment will sustain the effort with necessary appropriations it is possible to eliminate a calculated



Health work usually finds expression in terms of dollars or time expended. Connecticut has made a graph which sets forth the death rates and per capita expenditure.

preventable loss of \$32,000,000 still remaining.

“It stimulates peristalsis —and at the same time softens the fecal masses” . . .

That is the conclusion of a noted investigator who recently concluded a series of tests on the effects of Fleischmann's Yeast in constipation.

Authorities have suggested that the increasing prevalence of constipation is due largely to the deficient bulk of many concentrated, artificial modern diets. Where careful dietary regulation proves ineffective, Fleischmann's Yeast offers a valuable supplement.

Recent experiments show that fresh yeast, in quantity of two to three cakes per day, produces by its action a definite increase both in the bulk of the feces, and in their moisture content.

Fleischmann's Yeast is not habit-forming, and may be used *without* the difficulties attendant upon the use of cathartics and “laxatives.” Physicians and hospitals in many

parts of the country are now prescribing it with gratifying results.

Not only does it assist regular intestinal activity, but its vitamin content is highly beneficial, and experiments have shown that it also helps to produce a definite leucocytosis.

Best results are obtained by eating one cake half an hour before each meal, or the last thing at night—followed by a glass of water. If desired, the yeast may be first dissolved in water, milk or fruit juices.

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FROM THE FIELD

The population of the continental United States on January 1, 1923, was approximately 110,100,000, according to an estimate given out by the National Bureau of Economic Research. This showed an estimated gain of 4,500,000 since 1920.

This gain in population has been brought about partly by increase in immigration, reinforced by a reduction in the death rate. At the present rate of growth the population at the 1930 census will reach 120,000,000.

Approximately \$150,000 has been subscribed by the meat packers to begin actual development of the "institute plan," according to an announcement by Thomas E. Wilson, chairman of the Plan Commission of the Institute of American Meat Packers. The institute plan provides for the ultimate development at Chicago of a combined educational institution, research institute, trade association and industrial museum. The institution will be national in character and will serve the entire packing industry. One of the first steps will be a series of lectures at the University of Chicago, giving a perspective survey of the meat industry.

The National Health Council has prepared and published a comprehensive list of educational motion pictures on health subjects. Over three hundred titles are included in the list which gives in addition to the title the number of reels or the length; the name of the distributor, the rental or sale price; and a brief note about the subject matter of the film. The film list will be sent to any person or institution interested in motion pictures on health subjects but it is intended especially for public health workers connected with official and voluntary agencies. A charge of \$0.35 per copy is made for the list, which may be secured by addressing the National Health Council, 370 Seventh Avenue, New York City.

New York hospitals treat four times as many patients in their dispensaries as they do in their wards, yet the financial support given to the dispensaries is entirely disproportionate to the extent of the service rendered, according to a special committee, representing the Associated Out-Patient Clinics, which has recently com-

pleted a report on the financial problems of dispensaries.

A comprehensive report on the suicides of 1922 in the United States has been issued by Dr. Harry M. Warren, president of the Save-a-Life League. Of the twelve thousand persons who committed suicide, four thousand were women and nine hundred children. The list includes wealthy, prominent and highly educated persons; there were 38 college students, 50 college professors and school teachers, 19 preachers, 52 judges and lawyers, 84 physicians and 100 captains of industry. Seventy-nine were millionaires. The most appalling statistics were those on child suicide, the rate of which has doubled since 1919.

More than three-fourths of the countries from which immigrants are entering the United States already have reached their full limit of the number they may send in the fiscal year ending with June, and it is estimated that the Spring inflow from the few countries which have not filled their quotas will bring the arrivals in the year up to nearly or quite the 358,000 permitted under the law of May 19, 1921. The principal countries represented by the 14,000,000 persons of foreign birth living in the United States in 1920 were stated in numerical order, Germany 1,686,000, Italy 1,610,000, Russia 1,400,000, Canada 1,196,000, Poland 1,140,000, Ireland 1,037,000, England 813,000, Scotland 253,000. The Scandinavian States as a group are represented by slightly more than 1,000,000 persons. Sweden having more than one-half of this total. The number of natives of France, Netherlands, Belgium and Switzerland is comparatively small, those of France being but 120,000, exclusive of Alsace-Lorraine, Netherlands 132,000 and Belgium 62,000.

According to the records of the New York Lying-In Hospital, during the last ten years, 754 practicing physicians from 105 municipalities in New York state have received postgraduate maternity training at that institution. Of this number 30 are from villages having a population of less than 1,000. The records also show that during the above named period,

from every state in the Union has come at least one practicing physician for postgraduate work; 3 have come from Alaska; 100 from Canada, and 47 from 18 foreign countries.

More than \$9,333,000 was spent on public recreation last year by cities and towns reporting to the Playground and Recreation Association of America, it has been announced. For this purpose \$155,180 was voted in bond issues, and more than \$600,000 worth of land donated by private citizens, while 378 cities showed municipal support, entire or partial.

The Court of Appeals of the District of Columbia has handed down an opinion in a case which was brought by several residents of the District of Columbia against the Commissioners of the District to prevent the latter from erecting a school for tuberculous children on a site of ground north of Upshur Street in the City of Washington. On this site there is already a municipal hospital and a junior high school. Congress had appropriated a sum of money for the erection of a school for tuberculous pupils although it had not stated in the act just where this school should be placed. The Court of Appeals examined all of the Acts of Congress since 1900 referring to this matter but failed to find any authorization for the erection of the "building for the care of tuberculous pupils" on this particular location. Having considered the matter purely from the standpoint of the law, the Court accordingly dismisses the appeal of the Commissioners. This case, holding up the erection of a much needed school for tuberculous children in the District of Columbia, shows the necessity for getting specific and unquestionable legislation for public health items and sociological matters. Through a legal technicality, a matter of great benefit to the prevention of tuberculosis has been handicapped and postponed for some time.

Four delegates of the Council of Jewish Women have been appointed to complete investigations and surveys in the principal port cities of Europe, on employment opportunities and housing conditions affecting detained emigrants and refugees. They will observe the work that is being done by the Foreign Unit of the Council of Jewish Women, and will then proceed to Vienna, to attend a world conference of Jewish women's organizations from May 6 to 11.

A Castle Sterilizer for Industrial Clinics

Absolutely positive sterilization of all material used is the first essential in all clinics and industrial first aid rooms. There must be no chance of carrying infection from one case to another.

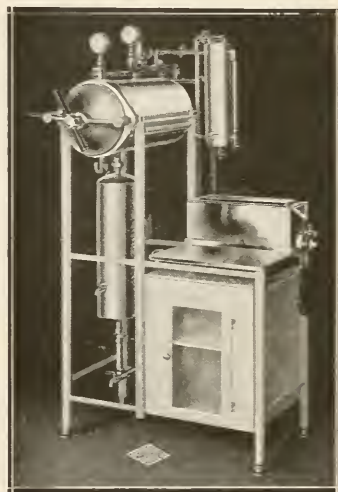
Completeness is the feature of the Castle Sterilizer No. 2019 shown here. It combines in one electrically heated pressure outfit every sterilizing need. It does its work with absolute dependability and accuracy. Send for details and specifications.



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Plans have been made for a \$1,500,000 training school for nurses at Mt. Sinai Hospital. The new structure will be the eighteenth building maintained and supervised by the institution. Half the cost has been promised by the trustees.

Railroad train operation during 1922 occasioned the accidental death of 5,776 persons, the interstate commerce commission reported, and the injury of 47,203 others. In 1921 deaths from similar cause were 5,587 and injuries 43,324, while in 1920 the killed numbered 6,495 and the injured 63,786. Nearly half of the persons killed last year, or 2,424, were trespassers, while 1,236 were trainmen or other employees. Passengers killed during the year numbered 193, against 205 the previous year, while the number of passengers injured was 5,813, compared with 5,584 the year before.

The Judge Baker Foundation is publishing a series of twenty case studies, each one consisting of a separate pamphlet printed in a form that is not only clear and interesting, but is peculiarly adapted to teaching purposes. This series of studies covers a wide range of problems of interest to educators, psychologists, psychiatrists, sociologists, judges, probation officers, and others dealing with matters that involve the adjustments of young people.

The fiftieth annual report of the New York Diet Kitchen Association was made public recently by Mrs. James D. Voorhees, the president. During the last year 6,099 babies were under care from the six baby health stations the association maintains; 6,130 mothers were advised and taught how to give their children intelligent care; 402 expectant mothers registered for supervision; 969 baby conferences were held, to which 37,017 visits were made by babies and their mothers; 1,503 pre-school children examined and supervised who made 6,330 visits to their health classes; 21,450 visits made to homes by the station nurses and assistants, and 516,669 quarts of milk dispensed.

Dr. Royal A. Meeker of Pennsylvania has resigned his position as Chief of the Scientific Division, International Labor Organization of the League of Nations Secretariat at Geneva, to assume duties as State Commissioner of Labor and Industry in Pennsylvania.

Dr. Sofie A. Nordhoff-Jung, member of the staff of Georgetown University Hospital, Washington, D. C., has founded an annual prize of five hundred dollars bearing the title of "The Sofie A. Nordhoff-Jung Cancer Research Prize." The prize, which will be granted for the first time in December, 1923, is destined for the encouragement of researches in the etiology and prevention of cancer.

Vivisection will be among the first subjects considered by the new Bureau of Legal Medicine and Legislation of the American Medical Association, according to a report by Dr. W. C. Woodward, executive secretary of the Bureau.

A course on The Social Aspects of Mental Hygiene is being conducted at Yale University, under the joint auspices of the Department of Social and Political Science of the university and the New Haven Council of Social Agencies. This course is open to the public without charge, and it is planned to publish the series of lectures in book form.

A municipal mental-health clinic has been opened in Pittsburgh, under the auspices of the Department of Charities. It is held at the City-County Building. This clinic accepts persons with mental disorders regardless of their ability to pay for treatment. It is expected to add to the efficiency of the operation of the City Home at Mayview, and to assist the courts and welfare organizations, by examining drug addicts, alcoholics, and other delinquents. This clinic is manned by four psychiatrists and two psychiatric social workers, under the chairmanship of Dr. Edward E. Mayer.

Children's code commissions in North Dakota and Kansas have both recommended that the age of compulsory school attendance for unemployed children who have not completed the twelfth grade be extended to eighteen years and that the minimum educational requirement for children going to work under this age, be the eighth grade. The Kansas Commission recommends that fourteen years be the minimum age at which a child may be employed in any work, including commercialized agriculture, and that sixteen years be the minimum age for the specified hazardous employments. Part-time school attendance is required of working children until they have completed the tenth grade.

A nation-wide survey is being conducted by the Red Cross Directors of Life Saving because of the increasing drownings reported year to year. In the last ten years in the United States there were 58,429 accidental drownings, 6,489 of which were in 1921. By locating the places where drownings take place and co-operating with the community through the Red Cross chapters, a campaign of education is being undertaken, lifebuoys are being placed and life-saving corps organized. The Red Cross has declared war against preventable drownings, and most drownings are preventable. The services of every swimmer in the country are needed to help.

Figures just published show that the population of Australia in December, 1922, was 5,634,000, an increase of 124,000 over the last year.

For financing the industrial standardization work of the United States a plan has been approved by the Executive Committee of the American Engineering Standards Committee, which is expected to provide an annual budget of \$50,000. The plan provides for membership dues on the basis of 1 cent per \$1,000 of gross receipts.

A vigorous campaign against venereal diseases is now being conducted in Indiana. There are sixteen public clinics in the state, and clinics in every correctional institution. For the general public there is a campaign of education through moving pictures, lectures, exhibits and pamphlets.

Pennsylvania State College is offering for the coming summer an eight weeks course in school nursing, designed primarily for nurses who are engaged in, or who desire to become engaged in, nursing work in the public schools. The college also offers about twenty courses in various phases of school health work, one being a four weeks course in nutrition designed primarily for school nurses. College credit will be given when college entrance requirements have been fulfilled.

One person in every seventy-three in the United States today is a confirmed drug addict, according to the reports of narcotic inspectors made to the Treasury Department. The evil is even getting a hold on high school children. Among the organizations for the abolition of the evil, the American Legion is prominent.

AN examination of some of Sherman's Vaccine* prepared *Ten Years* ago showed no apparent deterioration nor autolysis.

We welcome microscopic comparisons of our vaccines, for,—freedom from deterioration and autolytic products, accuracy of count and morphological characteristics.

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Dr. Frank J. Monaghan has been appointed Commissioner of Health for New York City, succeeding Royal S. Copeland, under whom he served as Sanitary Superintendent for the past five years. Dr. Monaghan has practiced medicine extensively and is the author of a number of pamphlets and monographs on various phases of public health work.

A study of the mothers' aid problem in Rhode Island, recently made by Olive S. Webb, at the direction of the General Assembly, shows that there are 554 mothers in the state who need help in caring for their dependent children. It is estimated that the sum of \$192,518 will be required to supply the needed aid. In her report, Miss Webb recommends that aid be given to mothers having children under sixteen, or to those having older children who are unable to work, and that the amount of aid be determined by the individual case. A state bureau of child welfare, independent or established in connection with agencies already existing, was shown by the study to be advisable.

The Industrial Fatigue Research Board announces the publication of three new reports: Report No. 20, "A Study of Efficiency in Fine Linen Weaving," by H. C. Woston; Report No. 21, "Atmospheric Conditions in Cotton Weaving," by S. Wyatt; and Report No. 22, "Some Studies in the Laundry Trade," by May Smith.

Mental hygiene surveys of Arizona, Kentucky, North Dakota, Rhode Island, and Wyoming have recently been conducted by the National Committee for Mental Hygiene. In addition to these, special studies of the mental hygiene needs of Louisville, Kentucky, and of the New York county jails have been made. The survey of Arizona, conducted by Dr. Thomas H. Haines and several assistants, is of especial interest on account of the character of the population. On the whole, the Indian was found to present a less serious educational problem than the Mexican. Among the recommendations made in the report of the survey are the organization of a board of mental hygiene with an executive officer to be called a commissioner, the establishment of a home and training school for mental defectives, and the supervision in the community of those mentally defective persons who do not require institutional care. The Wyoming survey was begun in November, 1922, and is now drawing to a close.

That the mental hygiene movement has become universal in scope is evidenced by the recently formulated plan to establish an international committee for the purpose of co-ordinating the work of the leagues existent in the individual nations. The plan was conceived by Mr. Clifford W. Beers, author of "*A Mind That Found Itself*," and founder of the mental hygiene movement; and has found favor with the majority of psychopathic experts. At the meeting of the organizing committee in December, it was arranged that the First International Congress on Mental Hygiene be held in the early part of June, 1924, in the United States.

A conference was held recently at Harrisburg, Pa., to discuss the activities of the Bureau of Animal Industry in the State Department of Agriculture and the question of procuring adequate funds for carrying on the work. The importance of continuing the study, prevention and control of tuberculosis, hog cholera and miscellaneous and transmissible diseases of animals and poultry was emphasized. Various live-stock associations, milk producers' associations, the Pennsylvania State Bankers' Association, the Pennsylvania Tuberculosis Society and other organizations have indicated their approval of the movement.

The Graduate School of Social Service Administration, the University of Chicago, is offering to its seventy students in training for social work a course on the psychiatric basis of social work, to begin the early part of February. It will include a general survey of the psychiatric problems underlying social work and will deal with the methods of diagnosis and treatment employed by psychiatrists, with special reference to the psychiatrist's approach to such problems as juvenile and adult delinquency, industrial maladjustment, family disorganization, and problems of personality.

An ambitious program has been adopted for the ensuing year at a recent meeting of the executives of the Virginia Tuberculosis Association. The list of projects includes the establishment of permanent tuberculosis clinics in cooperation with the State Board of Health, work in the public schools, and survey of the industries to determine to what extent medical and nursing service is being used and to stimulate such were absent. Among the recent activities of the As-

sociation is the issue of an attractive health play for two characters, entitled "The Health Fairy and the Witch," which may be secured by writing the Association at Room 611, Chamber of Commerce Building, Richmond, Va.

Diagnostic service for tropical and exotic diseases will be provided by the Department of Tropical Medicine of the Harvard Medical School, acting through the members of the medical profession generally. The Department will act in affiliation with the Service for Tropical Diseases at the Boston City Hospital.

Two measures are pending before the New York state legislature which would reduce the non-compensated waiting period in industrial accidents from fourteen to seven days, and would provide for compensation from date of accident if the injury extended over twenty-eight days instead of forty-nine as at present. According to State Industrial Commissioner Bernard L. Shientag, the state should assume the unjust burden carried by the injured and their families when industrial accidents come within the limited waiting period. In twenty-one states the waiting period is one week, and in seven the period is ten days.

The first nutrition institute ever held in Texas was conducted under the auspices of the home economics division of the Bureau of Extension at the University of Texas, Feb. 5-7. Many pediatricians, nutrition specialists, child welfare specialists, public health and Red Cross nurses, and home economics teachers attended. The purpose of the institute is to give to the nurse the latest information and developments along nutrition lines, particularly in relation to the pre-school and school child.

At least two states are systematically getting before the medical and health contingents on the voting public an analytical comment on pending legislation. The *Ohio State Medical Journal* for February presents all important bills now under way. In the February issue of *Better Health* the League for the Conservation of Public Health, an organization which has accomplished unique team work between professional men and laymen, offers critical comment on some seventy measures on which it is in position to make recommendations.

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Women have found in Kotex both assurance and comfort. Kotex makes it possible to wear the daintiest frocks with a sense of safety, and to attend to one's regular occupation or social engagements without discomfort.

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How We Resist Disease: An Introduction to Immunity

According to the author's, as well as the publisher's, blurb (to use the neologism of Brander Mathews), "How We Resist Disease" has been designed to meet the needs of an elementary course in immunology for nurses and general college students. We must congratulate Professor Broadhurst of Teacher's College, Columbia University, on the brilliance and adroitness with which she has consummated this difficult task. There are few, if any, sciences in the biological and medical fields which are more nearly sciences of *phenomena* rather than *facts* than immunology. And, correspondingly, there are few more difficult for the elementary student to comprehend or the pedagogue to teach. Because of its simple, lucid text, its wealth of illustrations (there is a figure on nearly every page!) and particularly because of the valuable descriptive material which accompanies the cuts, this book is a real contribution to the field. It is perhaps unfortunate that chemical analogies are not used more commonly in place of the time-worn (and patience-wearing) pictorial analogies. There is certainly as good theoretical justification for them and one is inclined to suspect that they are even more readily comprehended by the student who has had a single course in chemistry. However, even such criticism is gratuitous. The text is warmly recommended as well to the teacher of the first principles of infection and immunity and to the busy lay or professional person who has only a few hours or an occasional leisure minute in which to reestablish contacts with the ground-plan of immune phenomena and methods.

J. B. Lippincott Company, 1923, Svo; 248 pp.; 138 illustrations.

Foods of the Foreign Born

Some of the most serious problems of nutrition in this country arise from the contrast between the rural surroundings in which our immigrants have grown up and the complex urban environment in which they find themselves here. Miss Bertha M. Wood who is the dietitian of the food clinic of the Boston Dispensary discusses some of the particular hardships experienced by certain races such as the difficulty which Italians find in obtaining the milk, vegetables and eggs to which they are accustomed at home, (complicated by the habit of feeding infants as soon as

they are out of swaddling clothes on adult diet with the maximum distention of the abdomen as an ideal), a similar lack of milk in the Polish diet in this country and the shortage of milk and vegetables with an excess of pickles in the Jewish dietary. If dietitians are to secure results it is most essential that they should understand the religious and racial prejudices of the races with which they deal and should be able to express dietetic principles in the language of the foreign-born. The most important part of Miss Wood's book is a series of recipes for national dishes which appeal to Mexicans, Portuguese, Italians, Hungarians, Poles and other Slavic peoples, immigrants from the Near East and Jews, with particular emphasis on the national dishes suitable for undernourished children, diabetics, etc. The admirable suggestion is made that in institutions receiving foreign-born inmates an international menu should be provided containing each day at least one dish especially adapted to one of the nationalities or races represented. Furthermore there is much for us to learn as well as to teach and the American diet would be improved and enriched by the inclusion of many of the excellent dishes described in this helpful work.

Whitcomb and Barrows, Boston, 1922, 98 pp. + ix.

An Introduction into World Politics

Since the birth of nationalism and the complexities of the nineteenth century, the problems of international relationships have been of ever increasing importance. Our stability and existence in the future will depend in large part upon the reasonableness in the adjustment of these disputes, and careful and painstaking assembly of considerations such as this book by Herbert Adams Gibbons includes warrants the most studious perusal.

The Century Company, New York, 1922.

Civic Education

The author, David Snedden, discusses and analyzes the needs and possibilities for purposive and effectual objectives and the means of civic education. He is convinced that the aims or objectives of any proposed type of education must be derived from studies of the needs of contemporary societies, evidenced in the adult members. The greater portion of citizens cannot be trained to assemble data and derive conclusions

concerning social problems any more than they can provide their own dental or surgical service. "Somehow citizens must be so educated in civic matters that they will know when and where to rely upon conclusions reached by themselves, and under what circumstances to seek the guidance of experts, to appreciate and know that which will qualify them to select and use the right experts." Dr. Snedden points out the need for specific terminology and civic education as a part of general education.

World Book Company, Yonkers-on-the-Hudson, New York, 1922.

Market Milk

This timely contribution by two well known milk specialists, Ernest Kelly, in charge of market milk investigations, and Clarence E. Clement, market milk specialist, Dairy Division, Bureau of Animal Industry, U. S. Department of Agriculture, deals concisely with the theory and practice of the various phases of the market milk industry. It should prove helpful to anyone interested in problems of milk production and distribution, especially to dairy students and health officials.

John Wiley & Sons, Inc., New York, 1923.

Lewis H. Carris Heads National Committee

Lewis H. Carris, formerly administrative head for the Federal Board for Vocational Education, has been selected to succeed Edward M. Van Cleve as managing director of the National Committee for the Prevention of Blindness. Mr. Carris is by training and social experience particularly fitted to carry on the excellently well conducted program conducted by Mr. Van Cleve. During recent months he has served the Committee in field investigations which put him in immediate position to assume intelligent executive direction.

In losing the administrative efforts of Mr. Van Cleve, the Committee must place to the credit of his energy and vision a program of amelioration that has been singularly effectual and productive of public opinion and legislative effort which promises increased support of the movement from year to year.

The budget proposed by Governor Richardson of California will require the health forces of the state to operate with a reduction of \$112,730.96 from the present schedule.

In Cases of Stasis

Stanolind Liquid Paraffin

(Heavy)

Is Indicated

TODAY THE PHYSICIAN PRESCRIBES medicines only when their use is definitely, specifically indicated.

Wherever possible he obtains the desired results by methods which are mechanical, for in this way he avoids the danger of overtaxing the vital organs and obviates the likelihood of his patient forming a habit which may prove disastrous.

That is the reason why Stanolind Liquid Paraffin (Heavy) has won a place for itself among those physicians who have tried it.

Stanolind Liquid Paraffin (Heavy) is a rich, heavy-bodied, mineral white oil of ideal viscosity and correct specific gravity for the treatment of intestinal stasis and correlated ills.

Stanolind Liquid Paraffin is sharply distinguished not only in chemical composition, but also in its physiological action, from oils and fats of vegetable and animal origin. It undergoes no change in the course of its passage through the intestines. It is neither digested nor absorbed. Its primary action is entirely mechanical, keeping the intestinal contents soft, and lubricating the alimentary tract.

Physicians who have heretofore avoided medicinal mineral oils of domestic origin, will appreciate the unusually high viscosity of Stanolind Liquid Paraffin (Heavy)—300-310 Saybolt at 37.7 degrees C (100 degrees F); specific gravity — 0.891 — 0.895 at 15 degrees C (59 degrees F).

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Tasteless - Odorless - Colorless

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Body Mechanics and Health By Thomas and Goldthwait

The thesis advanced by Miss L. C. Thomas and Dr. J. E. Goldthwait is that "until a person understood good body mechanics and has gained the correct muscular coordination, chiefly of the abdomen, chest, and back exercise is of little benefit and often is harmful." The writers point out that children at least find ample opportunities in normal play for the exercise of the arm and leg muscles, and they believe that formal gymnastics should primarily emphasize the problems of posture and the development of a consciousness of postural control which is often wholly lacking. This is of course particularly necessary for the slender visceroprotic ("carnivorous") type which includes the majority of children. The rules for acquiring and maintaining proper body mechanics are so few and simple that they offer little excuse for negligence, requiring emphasis on the maxims "stand tall, head up, chin in, chest high, abdomen flat, weight on balls of feet." After a general discussion of the principles of postural control the authors give us an excellent series of progressive exercises designed to develop it and the teachings of the little book are emphasized by well chosen and unusually effective illustrations. This little book should prove of very real value not only to teachers of physical education but to everyone who has an intelligent interest in the problems of personal hygiene and who appreciates the motto quoted by the authors from Milton "Nature has done her best; do thou thine."

Houghton Mifflin Company, Boston, 112 pp.

Typhoid Fever in 1922

The annual summary of typhoid fever death rates that appeared in the March 10, issue of the *Journal of the A. M. A.*, shows that the slight interruption to the downward trend of the typhoid mortality curve that occurred in 1921, was more than overcome in 1922. The astonishing rate of 3.15 has been attained. In the editorial comment of the *Journal* for the following week it states:

This is a little less than one-sixth of the rate (19.59) for the large cities of this country in 1910. Three cities with an aggregate population of 473,975 were able to report a perfectly clean slate, not a single death from typhoid having occurred within their borders during the calendar year 1922. The main causes of indigenous urban typhoid in the United

States at present seem to be contact with typhoid cases and typhoid carriers—a steadily diminishing hazard, occasional cases from contaminated shellfish and from bathing in polluted water, and, perhaps in some cities, from the improper disposal of excreta. Relatively few cases appear to be caused by polluted drinking-water, by milk supply, or, in the Northern cities by inadequate sewerage.

The two great agencies of typhoid dissemination, polluted water supplies and raw milk, are largely eliminated, and while cities of from 10,000 to 100,000 population have unquestionably much progress to make, especially in control of the milk supply, the condition in the larger cities for the most part may now be regarded with pride instead of being pointed to with obloquy as awful examples.

The Science of Ourselves

The thesis of "The Science of Ourselves" by Sir Bamfylde Fuller is to show the evolution of conscious life and the expression of feeling and thought in behavior. It is not surprising to find innate mental capacities bound up with physical susceptibilities. The energy generated from motor excitement converted on the physical plane manifests itself as emotion. Through the activities of the brain, feelings, physical and psychic, are combined with ideas of them. The ideas themselves, whether impression, record, or concept, are material things represented by some sort of actual impress on a brain cell.

The relationships which develop are a result of coincidence or sequence in rhythm—mental associations are connected by familiarity of rhythm. Imagination and reason proceeds solely on the basis of individual experience. Conscious choice of the material of thought is colored by likes and dislikes—prejudice becomes unduly operative by some overcharge of emotions. Ideals become effective controlling motives only as experience tends to confirm their general truth. Reactions repeat themselves till useful habit is confirmed. Traits of character result from peculiar sensibilities of individuals to particular stimuli. By practice is evolved those complicated "tastes" which are artificially associated with certain stimuli and become objects of choice.

It is only by habit of mind that certain social objectives become inspiring. Civilization, after all, is an artificial product that does not "take" if the plastic period of childhood is not reserved for intelligent training. In the interest of human happiness certain ideals must be more generally inculcated and they are difficult to teach because the uncompromising

logic of the young minds demand a better conformity than their teachers usually evince.

Though the tenets of this book may seem disillusioning, a clear understanding of the physical basis of mental reaction will lead to a more general insistence upon sound inheritance, and to expect the achievement of satisfactory mental adjustment through good health and consistent nurture rather than through further idealization and self-deception. It cannot be claimed that illusion has been successful; and there is a case for bringing the mainstays of our behavior under the light.

Oxford University Press, New York, 1921.

Industry and Human Welfare

"Industry and Human Welfare" by William L. Cheney, which is a volume of the Social Welfare Library edited by Dr. Edward T. Devine is an attempt to trace the development of industrial-social problems, particularly those affecting the worker and the family of the worker. The development of modern industry has added greatly to the wealth, progress and comfort of mankind, but it has also produced conditions which are inimical to the welfare of industrial workers and to the community as a whole. Mr. Cheney shows how such problems as those arising out of the industrial employment of women and children, long hours, inadequate wages, irregular employment, accident and health hazards, and the like have developed as our factory system has grown in size and complexity. He traces the growth of sentiment for the protection of the interests of workers and gives a brief history of the development of legislative and other means of insuring that protection.

There have come some very striking changes in society's definition of what is socially wholesome. One is the change in its attitude toward child labor which is admirably set forth in these two sentences:—"In 1800 the employment of children was counted a discipline leading to virtue as well as a source of proper profit for their parents and guardians. At present employment of children in industry or agriculture is known to be a serious handicap to their normal development as workers and as citizens." Perhaps in the increasing public interest in these problems which Mr. Cheney depicts lies the best promise of their solution.

The Macmillan Company, New York, 1922.

THE NATION'S HEALTH

(Continuing MODERN MEDICINE)

*A Monthly Magazine Devoted to Community Health with Special
Reference to Industrial and Institutional Health Problems*

Volume V

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Number 6

Public Economy and Public Health*

Human Wastage the Crime of Our Present Civilization

By HARRY H. MOORE, UNITED STATES PUBLIC HEALTH SERVICE, WASHINGTON, D. C.

AS THESE lines are being written, thousands of newspapers are informing millions of readers of the accidental death in a Pennsylvania coal mine of seventy-six or more miners. But even while the people are reading the tragic news, dramatically related, other miners and carpenters and merchants and lawyers, and men, women, and children of all kinds are dying in the United States of preventable or postponable diseases at the rate of over sixty per hour, every hour of the day and every day of the year¹. Disasters such as mine explosions arouse popular sympathy and widespread remonstrance; they result in a demand for more careful inspection, for the purchase of safety devices, and for other preventive measures, regardless of cost. The needless death of hundreds of persons every day under less dramatic conditions has become so commonplace that few are moved to protest—to demand that adequate preventive measures be inaugurated and that sufficient funds be provided

A positive health program has never been made a popular objective, but health practices, along with other ethical systems, have been more a means of group control than self imposed routine day-by-day codes of action.

It may well be considered that health work has lagged, not because of retarded scientific achievement, but because health activities have not found their status proper in economic organization and because the public has not counted the economic recklessness of tolerating preventable disease.

to make such measures possible. The conquest of disease is largely a matter of available money. The appalling waste of human life in the United States will continue until this fact is understood by the appropriating bodies of local, state, and Federal governments.

Health Appropriations Meager

The dearth of trained men, the curtailment of scientific research, the scarcity of educational materials, the lack of dispensaries and other equipment are due largely to the meagerness of appropriations for official health agencies. The amounts appropriated for the health activities of

various units of government will be briefly discussed.

For several years the Federal government has appropriated approximately one hundred million dollars annually for the construction of rural post roads², with the provision that each state accepting its allotment of this fund appropriate a like amount. But a similar plan for the development of rural health work in cooperation with the states provides for an appropriation of only fifty thousand dollars per year³ (Fig 1). Although the money has been used so effectively that it has stimulated the expenditure by county and state governments of amounts five or six times as large as the Federal fund, it has appeared impossible to have the subsidy for health work increased. Only 216 of the three thousand counties of the United States were equipped at the end of 1922 with full-time county health officers (although in a few additional counties there were full-time public health nurses), yet the amount of money expended for a single mile of paved highway⁴ would provide a county with a health officer, a sanitary inspector, and one or more public health nurses, for an entire year, and there would be money left over for other expenses. No thoughtful sanitarian would begrudge the money used for good roads—he knows they bring the farmer into closer touch with the rural physician and nurse. He would not have less spent for roads, but he

*This article appears as Chapter XX in Mr. Moore's forthcoming book, "Public Health in the United States—an Outline with Statistical Data." In earlier chapters Mr. Moore deals with the human and economic costs of disease, the warfare against disease, various types of organized health work, and with economic and sociological aspects of public health. In this chapter certain additional data are presented emphasizing the meagerness of appropriations for health work and showing that it would be profitable from an economic standpoint to make larger sums available. The book will be issued in July as the first volume of "The Public Health Series," edited by A. J. McLaughlin and published by Harper & Brothers, New York City.

would have more spent for health work.

Although it may not be generally known, the Federal government assists the states in the maintenance of the national guard. The amount appropriated for such aid for the year 1923-24 was \$29,800,000. If only one-half of this money were available for rural health work and if it were matched by states and counties acting jointly, it would be possible to place a full-time health officer at \$4,500 per year and a public health nurse at \$2,500, with an expense fund of about \$3,000, in each of the three thousand counties of the United States. The same thing might be done if only three per cent of the total amount provided for the Army and Navy by the budget for the same year, were available⁵.

Municipal Health Departments

During 1921, 183 of the 253 cities of the United States having a population of over 30,000 expended for all municipal activities⁶, \$873,385,081. Only \$20,475,626—less than 2½ per cent of this amount—was used for the "conservation of health" (Fig. 2). This term (as defined by the Bureau of the Census, which compiled these figures) includes health administration, vital statistics, prevention and treatment of communicable diseases, conservation of child life, food regulation and inspection. A somewhat larger amount, it will be observed from the graph, was appropriated for "sanitation or the promotion of cleanliness," (which in some cities come under the jurisdiction of the department of health) including sewers (their construction presumably) and sewage disposal; street cleaning; other refuse collection and disposal; public convenience stations; other sanitation or promotion of cleanliness. The total of these two amounts, however, is less than the sum expended for police and other "protection to person and property" (not including fire protection). Only a little more was spent on sanitation and health combined than on highways.

State Health Departments

In 1916, about five million dollars was appropriated by all the states to their departments of health⁷, but, the year previous, over forty-five million dollars⁸ was used for the maintenance

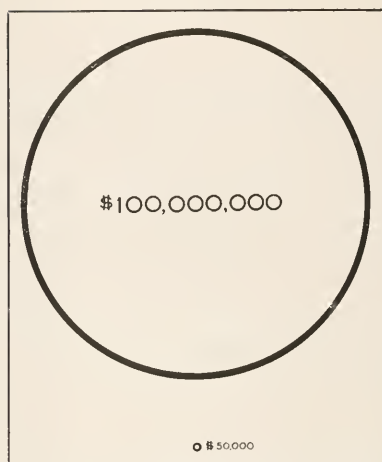


Fig. 1.—Expenditures for 1923-24, according to estimate of the Budget Bureau: \$100,000,000 for subsidies to promote the building of rural post roads; \$50,000 for subsidies to promote rural health work.

of subsidized institutions for the insane, epileptic, tuberculous, leprosy, blind, deaf, deformed and feeble-minded⁹. The hospitals for the insane provided care for only 199,000 patients, when, it will be remembered there are in the country at least 350,-

000 insane persons, who ought to have hospital care. In 1922, all the states were expending for public health work about eleven and one half million dollars; and at that time the institutional care of the defective and sick was costing about sixty to seventy-five million dollars (the exact figures are not available). Although the former amount does not include what is spent by municipalities within the various states, it would seem desirable, merely from the standpoint of economy, for the states to spend more money for prevention, at least for the prevention of tuberculosis, insanity, and other disorders and defects which are so expensive to the commonwealth. The graph (Fig. 3) shows the relation of the amount spent by the states for public health to the amount paid for the institutional care of the sick and defective.

Federal Health Activities

A graph prepared by the Bureau of the Budget¹⁰ shows that only 4/10 of 1 per cent of the total amount provided by the 1923-24 budget was for the promotion of public health by all agencies of the federal government. Figure 4 compares in terms of dollars the estimated expenditures for public health with estimates for other gov-

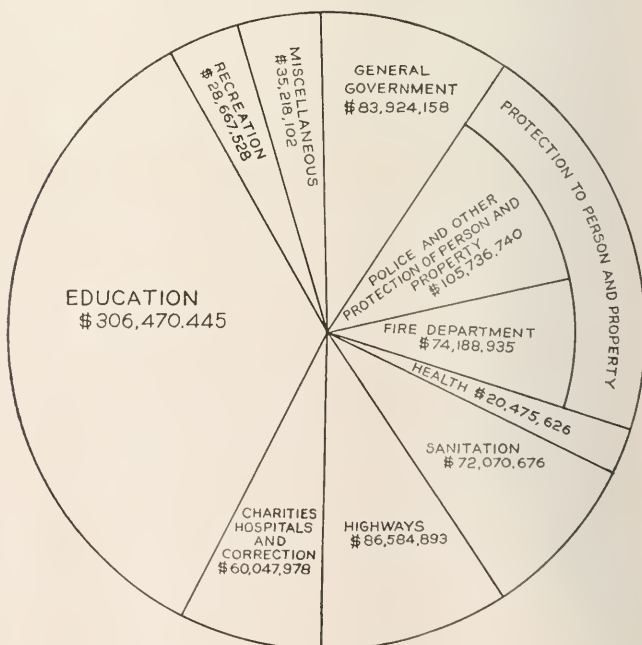


Fig. 2.—Amounts expended by 187 large cities of the United States in 1921 for various purposes.

ernmental agencies and activities¹¹. The annual appropriations to the United States Public Health Service are pitifully inadequate. "Congress with rare vision," says the *Journal of the American Medical Association*¹² "established some twenty years ago the Hygienic Laboratory of the United States Public Health Service. The staff has included some of the foremost representatives of chemistry, pharmacology, bacteriology, and medical zoology—the specialties most needed for a cooperative attack on the great problems of health in the country. But subsequent Congresses have failed to provide for any considerable growth of this laboratory . . . The people of this country spend \$500,000,000* a year on drugs in addition to other large sums for other means of obtaining relief from suffering and disease. Would it not 'pay' to spend a million or two a year to determine whether this great drug bill could not be reduced by the discovery of better, fewer, and cheaper drugs as well as of other means of preventing disease and of obtaining relief from pain?"

Funds Generally Meager

The total expended by all official agencies for public health work in 1922 was about sixty millions of dollars (Table 1). Yet at the same time

TABLE 1.—APPROXIMATE EXPENDITURES BY ALL OFFICIAL HEALTH AGENCIES FOR THE THREE YEARS ENDING 1922¹³

	1920	1921	1922
States ¹⁴	\$10,000,000	\$11,000,000	\$11,500,000
Cities ¹⁵	20,000,000	28,000,000	28,000,000
Rural ¹⁶	5,000,000	5,000,000	5,000,000
Federal ¹⁷	25,000,000	21,000,000	15,000,000
Totals	\$60,000,000	\$65,000,000	\$59,500,000

the people of the United States were spending over one thousand millions a

*This estimate of the American Medical Association is a little larger than that given at the beginning of the discussion of this subject in Chapter 3, and used also in the next paragraph.

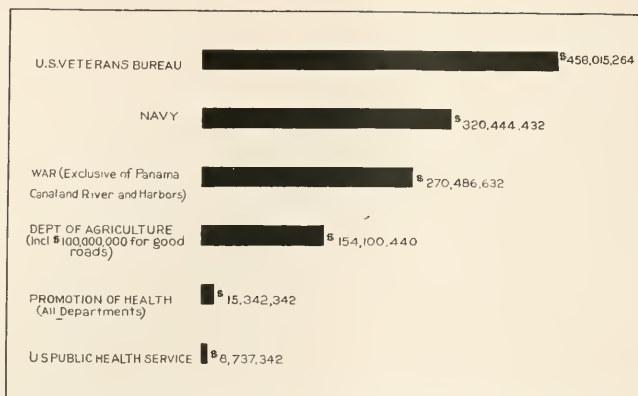


Fig. 4.—Budget Bureau's estimate of expenditures for the year 1923-24 for various departments and bureaus of the Federal Government.

year for hospital service, physicians, healers, and nurses, and, in addition, about three hundred and fifty millions for drugs—a total of approximately one thousand four hundred millions of dollars, to say nothing about the cost of premature death and the loss in time and efficiency caused by disease¹⁸. And it should be remembered that most physicians, healers, and nurses are engaged in curing diseases which efficient health work might have prevented, and that much of the medicine purchased is worse than useless.

The appropriating bodies of county, municipal, state, and Federal governments are demanding that appropriations for public health be kept down, because taxes have become so high as to be a burden to the people. In the light of the data set forth in the preceding pages, however, such an excuse for not adequately supporting health work seems hardly valid. So exceedingly small is the percentage of public funds spent in the United States for health activities that to double or treble the amount would make hardly a perceptible difference in the tax bill. Furthermore, a small

increase now in expenditures for health work would tend to reduce future taxes for the upkeep of various state institutions.

Surely a nation rich enough to spend over one thousand eight hundred million dollars a year on tobacco (Fig. 5) and eight hundred millions on confectionery would be willing (were the people persuaded to reflect upon the situation) to spend more than a paltry sixty million per year on its official health agencies. The most that can be said about chewing gum is that it probably does not do much harm; some physiologists believe that it has a detrimental effect on the digestive processes. Yet the people of the United States are paying each year more money for chewing gum than they appropriate through legislative bodies to all official agencies for public health activities. What will future generations say when they contemplate this fact and when they observe that we are now spending even more for perfumery and cosmetics¹⁹?

The tax alone on candy, collected by the Federal government for 1921, if used for public health purposes, would have made available a considerably larger amount than was allotted by the 1923-4 Federal budget for the promotion of public health by all departments of the government²⁰. If for the purpose of waging a more vigorous attack on disease, cigarettes were taxed just a trifle more than they are now (\$3.60 per thousand, instead of three dollars as at present) and other kinds of tobacco proportionally, it would be possible almost to double the amount now available for the health work of local, state and federal agencies combined²¹.

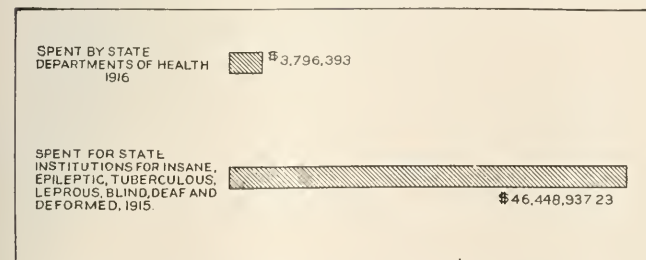


Fig. 3.—Amounts expended by the people of all the states through their state governments for health work and for the care of defective persons in institutions.

Of the economic profitableness of health work evidence has been presented indicating that disease costs the nation vast sums of money, that preventive measures definitely and promptly reduce both the amount of sickness and the number of deaths; and it has been obvious in many instances that such reductions result specifically in the saving of money.

When a man pays a physician fifty dollars to attend over a period of a year various members of his family who suffer from malaria, and then, after paying only one dollar extra on his tax bill *** for the inauguration of a program of malaria control measures, he finds that he has not had to call a doctor for twelve months on account of this disease—after such an experience, not uncommon in the South, there is no question in one's mind regarding the profitableness of at least this type of public health work.

The Metropolitan Life Insurance Company found that among its industrial policy-holders there were 55,000 fewer deaths in 1921 than there would have been had the 1911 death rate prevailed. It believes that "a very great factor" in this tremendous saving of human life was the "health campaign carried on by the Metropolitan itself." It was profitable to the company in 1921 to distribute eighteen million copies of its health magazine and, in addition, twenty-five million pamphlets; to conduct 144 health exhibits and emergency hospitals at county fairs; 295 "clean-up" campaigns; nationwide attacks against special diseases, and various sickness and sanitary surveys; to detail its agents to assist in the promotion of health legislation; to lend its leadership in research work related to influenza; and to send its trained nurses on 2,111,875 visits to policyholders. In addition, it appears to have been "good business" for this company to spend thousands of dollars in health publicity among the leading magazines of the country²².

It has been profitable, as has been seen, for many industries in the United States to invest \$2.00 to \$11.00 per employee, per annum, for health service.²³ When absenteeism and accidents are reduced, dollars are actually saved. One firm, it will be remembered, made a net saving of over forty thousand dollars by establishing a health service.

The main purpose of public health work is not to save money, but to

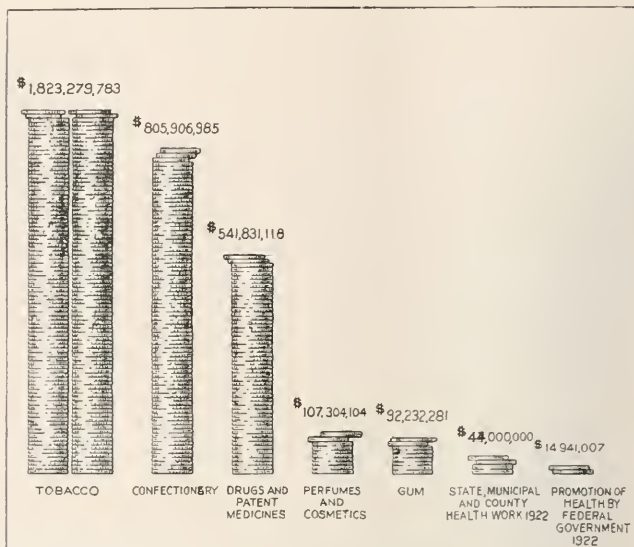


Fig. 5.—Estimated amounts of money spent by the people of the United States during one year (in 1919, except when otherwise indicated) for various purposes indicated. The five amounts at the left were obtained by adding to the "value at factory" 80 per cent for freight and express, advertising, profit of jobbers, profit of retailers, and other costs of marketing.

make possible for all the people the freer, fuller, more buoyant life; we must have health work regardless of its cost. But it is desirable to point out in passing that a public health program "pays" from the standpoint of saving money; and local, state and federal governments could profitably double or treble their appropriations.

The achievements of the past fifty years in preventing smallpox, yellow fever, malaria, bubonic plague, typhoid fever, and hookworm disease; in reducing the mortality due to diphtheria; in lowering the general and the infant death rates and increasing the span of life, gives strong support to the hope that tuberculosis, syphilis and gonorrhea, influenza, poliomyelitis, the mental diseases, pneumonia, cancer, and diseases of the heart and kidneys may also be greatly reduced. "Within natural limitations any community can determine its own death rate," affirms and reiterates the New York State Department of Health; and, what is as important, money will buy health and make possible a higher degree of efficiency and a fuller joy in living.

1. 1,390,000 deaths per year (on the basis of 1,142,558 for registration area) means over 3,800 per day or 158 per hour. Assuming that 40 per cent are preventable or postponable, there are, therefore, over 60 deaths per hour preventable or postponable.

2. Message of the President of the United States transmitting the Budget for fiscal year 1924, p. A12.

3. Ibid., pp. A63 and A70.

4. United States Department of Agriculture: Year Book 1920, pp. 340 and 343-5.

5. Act Making Appropriations for War Department 1924, Public No. 465, 67th Congress, p. 37; also Message of the President, op. cit., pp. A23, A19 and A24 (almost the full amount of the budget was allowed).

6. Bureau of the Census: Financial statistics of cities having a population of over 30,000, 1921, pp. 9 and 96-7.

7. Moore, H. H.: Public Health in the United States, Harper, New York, 1923.

8. Bureau of the Census: Statistical directory of state institutions for the defective, dependent and delinquent classes, 1915, p. 7.

9. These include only those institutions owned or leased, managed in whole or in part and maintained to the extent of at least 50 per cent of their expenditures by the state or federal government.

10. Message of the President, op. cit., Chart 5 facing p. A5. See also statement No. 9 facing p. A48.

11. Ibid., pp. A9 to A26, also statement facing p. A48.

12. Journal of the American Medical Association, Vol. 78, No. 11 (March 18, 1922), p. 807.

13. The fiscal year for some cities and states ends at various times during the year and for the federal government June 30th. This lack of uniformity is ignored, since only rough estimates are necessary for present purposes.

14. U. S. Public Health Service Reprints, Nos. 605, 706 and 775.

15. For 1920 Freeman's estimate is used.

16. U. S. Public Health Service Bulletin No. 126, p. 6; for 1921 and 1922 see Bureau of the Census: Financial statistics of cities having a population of over 30,000, 1921, pp. 96-101. (\$7,500,000 is added for cities in above group not reporting and for cities of 10,000 to 30,000 population not included in Census report.)

17. Freeman's estimate for 1920 (U. S. Public Health Service Bulletin 126, p. 6) is used for 1921 and 1922 also.

18. Message of the President, op. cit., statement No. 9 facing p. A48.

19. Moore, H. H.: Public Health in the United States, Harper, New York, 1923.

20. Fourteenth Census of the United States, Manufacturers: 1919, pp. 13, 4 and 10.

21. Annual Report of the Commissioner of Internal Revenue, 1921, p. 63.

22. Ibid., pp. 50 to 52 (a 50 per cent increase would make about \$51,000,000 additional to funds available).

23. Advertisement of the Metropolitan Life Insurance Company, Washington Herald, March 20, 1922.

**The cost of malaria control measures is discussed in another chapter.

***The investment of money for health service in industry is discussed in another chapter.

Water Sports as Municipal Recreation

BY MABEL TRAVIS WOOD, PLAYGROUND AND RECREATION ASSOCIATION OF AMERICA.

EVERY year the old jest that cities are the most popular summer resorts in the world acquires a little more truth. In spite of scorching pavements and breezeless apartment houses, cities are becoming more and more pleasant and healthful places in which to live in summer. Municipal departments of recreation are providing park play spaces, playgrounds, tennis courts and recreation piers. One of the chief ways in which they are keeping their population happy during hot weather is through water sports. For humanity turns naturally to water when the mercury is high.

The green depths of the "old swimmin' hole" beckoned alluringly to the boy of a generation ago. The lure of water is just as strong for modern youngsters whose activities are curtailed by streets and walls. "The gang" sneak off to the dock and splash eagerly into the appealing element. Its purity may be questionable, but the fact that it is water is sufficient for them. A group of urchins minus a playground, but plus a gutter pool and a warm afternoon, always results in a miniature Coney Island. As for the real Coney Islands, they swarm with city-dwellers of all ages.

Water sports under proper conditions are healthfully recreative. Unsupervised they may prove a menace to life and health. For both these reasons cities have been giving them an important place on their summer recreation programs. One hundred and twenty-seven cities reported to the 1922 Year Book of the Playground

and Recreation Association of America that they were providing bathing beaches, and one hundred and eighty cities that they were providing swimming pools for their citizens. Listed among civic duties we now find teaching every boy and girl to swim and furnishing places where they may swim in safety. Sanitary municipal pools, both indoor and outdoor types, municipal beaches and playground wading pools are supplying hot weather fun and comfort to millions.

They are doing it at a nominal cost. "It is cheaper to pay taxes for municipal recreation than to buy expensive commercial recreation," says the superintendent of the efficient system of recreation in Oakland, California. A swim in one of Oakland's municipal pools costs the city only ten cents, while in a commercial pool the cost of a swim to an individual averages sixty cents. Bond issues for water sport facilities are becoming increasingly common. Memphis, Tennessee, recently appropriated \$100,000 for a public swimming pool.

Many municipal pools and beaches have been constructed as a direct result of the toll in lives taken by some river or lake. "Keep away from the river and the canal; they're dangerous," young people of Middletown, Ohio, were warned. Then Middletown awoke to the fact that it should be providing some legitimate outlet for this desire for the water. Street shower baths, under the cooling spray of fire hoses, were tried and proved immensely popular with the children. And last September a fine new mu-

nicipal pool was opened. One side is shaded by trees. Another is bordered by a sandy beach fifteen feet wide. There are rustic bath houses, a diving tower, spring boards and a chute-the-chute. Hundreds could not wait until the formal opening of the pool and took a dip while the contractors were still at work.

Municipal Beaches

Cities fortunate enough to have either ocean frontage, or a clean lake or river have equipped these natural bathing resources for safe water recreation. The municipal beach is, besides a place for bathing, an outdoor playground where families may go to spend an afternoon or a holiday. It offers sand and waves and refreshing breezes without catch-penny attractions and with assured sanitation and orderliness. Cities provide bath houses and water sport equipment, maintain life guard service and often supply swimming instructors.

An island in the Susquehanna River, across the way from the city park of Harrisburg, Pennsylvania, was made into a municipal bathing beach and opened to the public in June, 1921. It has proved a magnet to city dwellers, attracting thousands every summer day. This is an excellent example of how a natural facility, improved, can be increased in service manifold. Before Harrisburg floated a loan of \$40,000 for the improvement of the beach and the erection of concrete bath houses, the site had been used for bathing only by an occasional few. There had been two inadequate



Wading pools supply hot weather fun and comfort to playground frequenters.



Bathing beach operated by the department of parks, New Bedford, Mass., and self-sustaining.

and primitive wooden bath houses. The new bath houses have lockers, shower baths, drinking fountains, and electric lights. There is no charge for swimming privileges and bathing suits are supplied at a nominal fee. A first aid tent has been erected and life

used for skating, and thus their recreational value is extended. The most favored shape is oval. Long, narrow dimensions prevent unskilled swimmers from getting too far from shore and enable life guards to more quickly reach those in trouble. Con-

ing from fifteen inches to a maximum of ten feet, eight inches, accommodates every class of swimmer from beginners to experts. A concrete pool at Pierre, South Dakota, also constructed largely by volunteer labor, is near a supervised playground. Both pool and playground are lighted and kept open until ten o'clock on summer evenings. A unique feature of this pool is the fact that the water comes from a natural gas well and flows in at a temperature of 96 degrees Fahrenheit the year round. This makes it possible for lovers of swimming to indulge in the sport much earlier and much later than they could in the average outdoor pool.

A recent tendency is to make artificial outdoor pools resemble as closely as possible a spot arranged by nature for man's delectation. A little distance from Chicago factories and smokestacks is the new Columbus Park combination swimming and wading pool. But it is shut off from urban things by real country hedges. Elm, maple and ash trees have been planted in the background, and there is an undergrowth of hawthorn, sumac, wild plum and cherry. Ledges of rock give the sides a very natural appearance, and the pool is fed by a little waterfall, supplemented by several hidden supply pipes.

Keeping the outdoor pool sanitary is accomplished in different ways by different cities. There is generally a constant flow of running, filtered water, and the entire body of water is changed regularly. While the pool is empty it is thoroughly scrubbed with brushes. Most cities have the water examined for bacteria at regular intervals. Purification of the water between changings is accomplished by the use of hypochlorate of lime, copper sulphate or other chemicals, or by treating it with ultra-violet rays. Bathers are everywhere requested to take a shower before entering the pool. This serves as a sanitary measure and also prepares the bather for his plunge.

To make sure that no persons with infectious diseases enter the pools, many cities make passing a medical examination a requirement for bathing privileges. At the larger St. Louis pools a physician is constantly on hand to render first aid and to inspect the bathers as they enter the pool. Although this inspection is necessarily superficial, any infectious skin disease would probably be detected. Often it has been found better from a health standpoint to supply bathing suits at a nominal charge than to let the bathers bring their own suits. The



The youngest citizens are not forgotten.

Community Service

guards watch over the safety of the bathers.

Transforming an abandoned pond, which had once been used for cutting ice, into a successful swimming beach, was accomplished in Brockton, Massachusetts, through cooperation of the entire city under the direction of Brockton Community Service. The mayor and two hundred citizens donned overalls one Saturday afternoon and cleared the shore of boulders. The city supplied sand. An old two-story hen house, located two hundred feet from the beach, was turned into a modern bath house with dressing rooms and showers through the volunteer work of masons, carpenters and plumbers. Now Brockton's water playground fills an important need in its recreational life. The water carnival staged there each summer is a gala event for the whole city.

Cities without natural bathing facilities have constructed artificial pools for outdoor summer use. Often such pools are used to supplement natural facilities. Given a small piece of ground available for play purposes, a city can utilize it to no more popular or intensive advantage than by building a swimming pool upon it. In the winter these outdoor pools may be

crete is the usual material. Many pools are provided with lights so that they may be kept open at night. At Jackson Park beach, in Chicago, flood lighting from the shore makes bathing at night almost as safe as it would be in the daytime. Reflectors project powerful rays down upon the water. Service to men, especially in an industrial community, makes evening operation necessary. The use of the pools at this time is generally limited to working men and boys.

Outdoor Swimming Pools

Detroit provides sixteen outdoor swimming pools in different parts of the city. Grand Rapids has thirteen, in charge of a corps of life guards who look like college athletes and who are selected for intelligence and for qualities of leadership. An interesting municipal pool was built at Johnstown, Pennsylvania, during a period of industrial depression and much of the work was contributed. Local firms supplied practically all of the materials free of charge. Though the completed pool is an improvement valued at more than \$60,000, the actual cost of construction to the city was \$11,000. The pool is 250 feet long and 165 feet wide, and the depth, increas-

West Park system in Chicago had been asking those who used its pools to furnish their own suits and towels. The dry goods stores in the district began to complain that their sales in children's underwear had materially decreased. It was discovered that many mothers were making for their children trunks which served the dual purpose of underclothing and bathing suit! The danger was obvious. Now the West Park system supplies suits, soap and towels free. No disease or contagion has ever been traced to its pools.

Children's Wading Pools

The youngest citizens are not forgotten when cities supply water sport facilities. Few children's playgrounds nowadays are considered amply equipped for summer fun unless they have a wading pool. Such pools are usually made of concrete with curb walls high enough to serve as a seat. Occasionally they have a bottom of sand, which allows the water to filter away through the soil or to evaporate, and which is soft and yielding for small feet. Dressing rooms are supplied in a nearby field house, also facilities for the shower bath each child is required to take before entering the pool. Often a sand court adjoins the pool, and seats are arranged under a canopy for mothers who wish to watch the youngsters enjoying themselves in the cool water or on the miniature beach. The wading pool serves to acquaint little children with the water and makes it easier to teach them to swim when they are older.

Popular Water Sports

Swimming is fun enough in itself, but lately water games of all kinds have come into prominence and have added to the recreation possibilities of the municipal pool or beach. Basketball, push ball, volley ball and baseball are among the games played on land which may be adapted to playing in the water. Other interesting possibilities are obstacle races, tugs of war, wrestling in shallow water and potato relays. All these games are described in a chapter on water sports in the handbook "Recreative Athletics" issued by Community Service, 315 Fourth Avenue, New York City.

As part of their summer recreation program, cities have been setting aside days for organized water sports. Among the events are swimming and canoe races, fancy diving and water games. Music and dramatics sometimes have a part, as at Harrisburg, Pennsylvania's annual "Kipona" or



Swimming pool erected by the local community service, Rocky Mount, N. C. Community Service

"festival of the sparkling water," when singing, dancing and colorful pageantry take place on a fifteen-hundred-foot stage built on coal barges and anchored in the river. Detroit's annual Aquatic Day at Belle Isle brings out throngs of merry-makers. The city has cut miles of miniature canals on this island so that people may go boating in safety. Some of the attractions at a recent water carnival in Brockton, Massachusetts, were a game of water baseball between the city fire department and the city officials, a miniature boat race open to toy craft owned both by boys and girls, and a bathing suit style show.

Cities Teach Swimming

Cities are assuring the widest use and enjoyment of their water sport facilities by teaching boys and girls how to swim at an early age. They are also teaching swimming to adults who have not had a chance to learn. City-wide Learn-to-Swim Week every year prepare thousands of new swimmers for sport in the water. It is an asset to a city to have a swimming population. Not only does it mean conservation of life, but it means better general health through better general bodily development. When dwellers among crowded streets seek a cool plunge they are not thinking, as a rule, about the health they are acquiring. They are thinking about having a good time. To give them a good time is the immediate reason why cities spend money on swimming facilities. But, watching their boys and girls grow deep-chested and muscular, cities know that they are going to reap returns tomorrow in sturdier citizens.

Fine Water Supply for Jerusalem

During the five years of the English occupation and Zionist activity in Palestine more has been done probably to furnish the inhabitants of Jerusalem with a safe and adequate water supply than was done during the centuries of Turkish occupation says the *New York Times*. The city had but one small fountain, so that in former times the people were almost entirely dependent upon cisterns, which were oftentimes so foul that outbreaks of typhoid or malaria were common.

The military administration under General Allenby soon discovered strong springs in the Judean Hills south of Bethlehem, about seven miles south of Jerusalem, and by building a reservoir on a neighboring hill pump the water into this and then have it flow into Jerusalem by gravity.

But the long, dry summer proved too heavy a tax upon even this supply, so that the engineers of the Public Works Department turned their attention to three great reservoirs a few miles south of Bethlehem, known as Solomon's Pools.

These pools had been out of repair several hundred years. Two have now been cleaned and re cemented, and with their large supply are ready to increase greatly the supply of Jerusalem. The source of these pools is three miles further south and for half of this distance the water is brought through a tunnel cut through rock.

When the third pool is completed the capacity of the three will be forty million gallons, equal to the three months supply of water for the entire city.

Public Health in the Sixty-Seventh Congress

By JAMES A. TOBEY, M.S., LL.B., ADMINISTRATIVE SECRETARY, NATIONAL HEALTH COUNCIL, NEW YORK CITY.

THE Sixty-seventh Congress, which recently adjourned, is said to have made history in a number of respects. This Congress was the first which has ever held four sessions; it had the first woman senator; it gave birth to the bloc movement; and did a number of other striking things which have been sufficiently enumerated in the public press. This Congress added nearly a thousand new laws to the statute books, but only about 3 per cent of this number dealt with public health. Here, then, was a real opportunity for it to have made worth while history by giving adequate attention to the Nation's health, an opportunity which was passed by. Congress convened in special session on April 11, 1921, and adjourned on March 4, 1923. During this period it was in almost continuous session except for short recesses from time to time. In the four sessions, more than 21,000 bills and resolutions were introduced in both branches of Congress although, of course, many of these were duplicates: Of these bills 16,700 originated in the house and 5,419 in the senate. Of this number, 931 became laws and of these, 276 were of a private character so that 655 public laws were the result of the efforts of Congress.

In order to supply sanitarians with prompt, accurate, and impartial information on the public health measures before Congress, the National Health Council decided soon after it began operations in January, 1921, to issue bi-weekly bulletins on national health legislation. During the Sixty-seventh Congress, forty-five such bulletins were issued from the Washington office. They have listed approximately 350 bills and resolutions as being of direct interest to sanitarians. This number, however, represents only between 1 and 2 per cent of all the measures which were before Congress. Of the 931 laws which were placed on the statute books only thirty-one, not including appropriation bills, have a direct bearing on public health and some of these are purely local in character. Thus, only 3.3 per cent of the laws passed by Congress in the course of nearly two years have dealt with this important subject.

The health bills which did pass include the following public laws:—

No. 47. Veteran's Bureau created. August 9, 1921. (H. R. 6611).

No. 51. Packers Act. Regulating interstate and foreign commerce in live stock and dairy products. (H. R. 6320).

No. 74. Cincinnati Health Exposition, cancellation stamp for. October 10, 1921. (H. R. 8365).

No. 78. Veterans in Hospitals, tobacco for. October 14, 1921. (S. 1718).

No. 96. Anti-Beer act, supplement to national prohibition law. November 23, 1921. (H. R. 7294).

No. 97. Maternity and Infancy, promotion of welfare of (Sheppard-Towner Law). November 23, 1921. (S. 1039).

No. 110. Searcy hospital for colored insane in Alabama, land for. November 5, 1921. (H. R. 6961).

No. 125. Water supply for Fort Monroe. (H. R. 7204).

No. 129. Medical and surgical supplies transferred by Army to Russian relief. January 19, 1922. (S. 2708).

No. 194, No. 216, and No. 273. Hospitals for veterans. April 14, 1922; May, 1922; July 1, 1922. (H. R. 10864, H. R. 11547, H. R. 11588, resp.).

No. 227. Narcotics prohibited from importation or exportation except for medicinal purposes. May 26, 1922. (H. R. 2193).

No. 225. Pay of Army, Navy, Public Health Service, etc. (H. R. 10972), June 7, 1922.

No. 318. Tariff act. September 21, 1922. (H. R. 7456).

No. 330. Leprosy station in Hawaii. June 19, 1922. (H. R. 11589).

No. 347. Coal commission. (H. R. 12377).

No. 352. Fees, surgeons of Pension Bureau. September 22, 1922. (S. 3540).

No. 430. Federal Leprosarium, additional buildings for. February, 1923. (S. 3721).

No. 460. War Risk Insurance, amendment concerning. March 2, 1923. (H. R. 10003).

No. 463. Hospital in Arkansas, transfer. March 2, 1923. (H. R. 12751).

No. 472. Sewage drain at Miami, Florida. March 2, 1923. (H. R. 13272).

No. 513. Filled Milk, prohibition of in interstate commerce. March 3, 1923. (H. R. 8026).

No. 516. Reclassification of Government Positions and salaries. March 3, 1923. (H. R. 8928).

No. 519. Butter, standard for. March 3, 1921. (H. R. 12052).

No. 542. War Risk Insurance, amendment concerning. March 3, 1923. (H. R. 14401).

No. 536. Compensation for injured government employees. March 3, 1923. (H. R. 14222).

And the following Public resolutions:—

No. 63. Disposal of articles produced by patients of Veteran's Bureau. (H. J. Res. 313).

No. 65. Pollution of Navigable Waters convention. (H. J. Res. 297). August, 1922.

No. 75. Water supply of Kansas City, Missouri and Kansas. (S. J. Res. 216).

No. 96. Narcotic control, international cooperation in. March 2, 1923. (H. J. Res. 453).

While it is difficult to select the most important of these laws, there are a number which stand out as of real influence on national health. These include the Maternity and Infancy Law, popularly known as the Sheppard-Towner Act, the Filled Milk Law, the Hospitalization for Veterans, the Narcotic Act, the Anti-Beer legislation, and the measures which serve to increase the pay of Government health workers. The Federal Maternity and Infancy Act which became a law in November, 1921, has already been contested and is before the United States Supreme Court for a decision as to its constitutionality. This cause was brought by the Commonwealth of Massachusetts in accordance with a legislative resolution. Another suit was brought in the courts of the District of Columbia by a citizen of the state of Massachusetts, but both the Supreme Court and Court of Appeals of the District have upheld the law and the case has been appealed direct to the U. S. Supreme Court, where it will probably be tried with the one now pending.

The Sheppard-Towner act authorizes an appropriation of \$480,000 for the fiscal year ending June 30, 1922 and \$240,000 annually for five years thereafter, to be apportioned equally among the states. In addition, an appropriation of one million dollars for the fiscal year 1922 and a like annual sum for five years is authorized, this latter amount to be apportioned five thousand dollars to each state, and the balance according to population. In order to receive this sum, the state must appropriate an equal amount. The state must also accept the provisions of the act, authorize a state agency to administer it, and submit detailed plans, which must be approved by a Federal Board of Maternity and Infant Hygiene before the grant will be made to the state. The Children's Bureau of the Department of Labor is charged with the administration of the act and is given not to exceed 5 per cent of the appropriation for such purposes. A certificate of allotment of money to a state may be withheld by the Children's Bureau, with the approval of the board, but the state agency may appeal directly

to the President. The board is made up of the Chief of the Children's Bureau, the Surgeon General of the United States Public Health Service, and the United States Commissioner of Education. Already thirty-nine states have accepted the act of legislative enactment and legislation is pending in three others. Maine, Massachusetts, Louisiana, New York, Rhode Island and Vermont refused to accept the act.

The so called "Filled Milk" law would prohibit the shipment in interstate commerce of filled milk, which is described in the bill as an adulterated article of food injurious to public health, the sale of which constitutes a fraud on the public. This filled milk is further described to be any milk, cream, or skimmed milk, whether or not condensed, evaporated, concentrated, powdered or desiccated, to which has been added or blended any fat or oil other than milk fat. The law does, however, exempt certain products which are prescribed for infant feeding by a physician. At the hearings on this bill there was a good deal of conflicting testimony as to the nutritive value of filled milk, some eminent scientists holding that it was lacking in vitamins, while others asserted with equal assurance that it was wholesome and nutritious. The law does not, of course, affect the sale of such filled milk within a state, but already a number of states, including Utah, Maryland, Florida, California, Colorado, Connecticut and Oregon have laws either suppressing it or making the sale of it impractical, and similar laws are pending before the legislatures of other states.*

The Narcotic law (No. 227) amends existing law and creates a Federal Narcotics Control Board, to be composed of the Secretary of State, Secretary of the Treasury, and the Secretary of Commerce. This board shall determine the amount of crude opium and cocoa leaves which may be imported into this country for medicinal purposes. It is made unlawful to bring these drugs in except for these reasons and the law imposes a fine of not more than five thousand dollars and imprisonment for not over ten years for conviction of the offense and also sets out methods of seizure and procedure when drugs are imported. Another law regarding narcotics was the resolution requesting the President to urge upon the governments of certain nations the necessity for limiting immediately the pro-

duction of habit forming narcotic drugs and the raw materials from which they are made, to the amount actually required for strictly scientific purposes.

The United States Veterans' Bureau was created during the first session of the Sixty-seventh Congress and served to coordinate all medical activities undertaken on behalf of ex-service men. During this calendar year the bureau will disburse the stupendous sum of \$475,000,000. A number of appropriations for hospitals for veterans were passed, including one of seventeen million dollars which is an addition to the eighteen million dollars provided by the Sixty-sixth Congress.

The pay of officers of the Army, Navy, and Public Health Service was materially increased by a law which was signed in June, 1922, while the salaries of other Government sanitarians will be affected by the reclassification law, which passed during the last days of the fourth session. The senate held this reclassification bill for fourteen months after the house had passed it, and then completely rewrote the bill. Rather than lose the reclassification entirely, the house concurred in the senate amendments. Most sanitarians would come under the professional and subprofessional services in which annual salaries range from \$1,860 to \$7,500 and \$900 to \$3,000, respectively. This law goes into operation on July 1, 1924.

The control of leprosy was given greater facilities by the passage of the act appropriating \$650,000 for the new buildings for the Federal Leprosarium at Carville, Louisiana. The tariff act of 1922 contained a number of items of interest to sanitarians, principally with regard to duties on chemicals and drugs. The so-called anti-beer act, which prohibited prescription of beer by physicians aroused much comment and opposition from the medical profession, but became a law nevertheless.

Since only thirty-one health bills became laws, about 320 failed of passage. Many of these were minor measures—some of them "freak" ones—and a large number never got out of committee. Among the more important health bills which did not pass may be mentioned: the resolutions to amend the Constitution relative to restriction of child labor; transfer of the activities of the Interdepartmental Social Hygiene Board to the Department of Justice; the Fess-Capper bill for Federal aid to physical education; commissions for sanitary engineers in the U. S. Public Health Service; reorganization of the U. S. Public

Health Service; the uniform marriage and divorce bill; sale of Marine Hospital at Detroit; a number of bills relating to tuberculosis; and a couple of anti-vivisection measures. The District of Columbia, for which Congress legislates, fared particularly badly with respect to health measures, as bills to regulate milk, venereal diseases, optometry, and child welfare were not acted upon.

A plan for reorganization of the Federal executive departments was submitted to Congress by the President on February 15th, though no bill was introduced and no action taken. The principal matter of interest to sanitarians is, of course, the proposed new Department of Education and Welfare.

Existing bureaus which would be transferred to this Department of Education and Welfare are as follows:

(a) From the Department of the Interior—Bureau of Education, Indian Schools, Howard University, St. Elizabeth's Hospital, Freedmen's Hospital, Bureau of Pensions; (b) from the Department of Labor—Women's Bureau, Children's Bureau; (c) from the Treasury Department—U. S. Public Health Service; (d) from the War Department—Soldiers' Home; (e) from the Department of Justice—Office of Superintendent of Prisons; (f) independent establishments—Smithsonian Institution, Federal Board of Vocational Education, National Home of Disabled Volunteer Soldiers, Columbian Institution for the Deaf, and Veteran's Bureau.

The department would have four divisions, namely:—Health, Education, Social Service, and Veteran Relief, each under an assistant secretary. Other recommendations of general interest include the combining of the War and Navy Departments into a new Department of National Defense; transfer of public works activities from War and Navy to other departments, chiefly the Interior; change of name of Post Office Department to Department of Communications; and removal of non-fiscal services from the Treasury Department.

The Sixty-eighth Congress will convene the first Monday in December of 1923, provided no special session is called in the meantime. It is said that the President, having undergone the Sixty-seventh Congress, has no desire to assemble the Sixty-eighth before its time. This latter body will have the usual opportunity to pass much needed health legislation. Whether it will take the usual course and pass over most of it, or take an unusual course and pass it, remains to be seen.

*Editor's Note.—An appraisal of the filled milk bill as health legislation appears on page 352 of this issue of THE NATION'S HEALTH.

Legislation on Filled Milk

IN VIEW of the very regrettable action of Congress in passing the filled milk bill to which reference is made in another column of this issue of *THE NATION'S HEALTH* we desire to reprint with our own full endorsement an editorial in regard to this problem from the April issue of *The American Journal of Public Health*:

There is at present before Congress a bill prohibiting the shipment of filled milk in interstate or foreign commerce, declaring it to be an "adulterated article of food, injurious to public health, and a fraud upon the public." This bill has already passed the House and gone to the Senate accompanied by a report recommending the bill with slight changes.

Filled milk is a compound made up of skimmed milk to which 3 or 4 per cent of cocoanut oil is added. It is then condensed to approximately one-half of its bulk.

Our interest in this bill lies in the effect of such a compound on the public health. Both sides are represented by legal counsel, and the hearings before sub-committees have been characterized by controversies which are not at all scientific, and which indicate that public health is one of the least considerations involved. It is charged that the whole matter is a trade fight between two large milk companies, one of which is putting out filled milk, in addition to its other business, and it is almost impossible to read the transcript of these hearings without gaining the impression that this is a fact.

As far as the injury to public health liable to be done by filled milk is concerned, the discussion centers largely around the vitamins and particularly fat soluble "A." In the report made to the Senate it is stated that "even tuberculosis may be traced to lack of vitamins in the diet." In view of such statements one can hardly deny the charges made that there is a great deal of "vitamin hysteria" at the present time.

Needless to say, women have taken part on both sides and some of the most untenable statements are made by them. One who qualifies as a nutrition expert, employed by the Dairyman's League Cooperative Association, says: "We are not measuring our food in calories any more." "You don't want any more heat on a day like this." Another, speaking of a certain brand of filled milk, says: "Yet this is but fifteen or twenty cents worth of poison." Even some of the physicians who qualify as experts make untenable statements. Certainly hearings before committees are not places in which to get scientific facts, although the discussions are often interesting and illuminating.

Certain dairymen's associations are supporting the law. As far as the dairy trade goes, we are only incidentally interested, but it is well to remember that in the past, laws protecting the dairymen have not usually been made with much regard for the public. The bill which taxes oleomar-

garin, and puts a prohibitive tax of ten cents a pound on colored oleomargarin, is still in force, though nothing can be said against oleomargarin from the public health standpoint. On the other hand, butter makers universally color butter, and it is taught in the agricultural colleges throughout the United States. The addition of one or two mills worth of artificial color adds nothing to the nutritive value of butter, yet it makes a product which is unsalable as butter, or at best salable at low prices, sell to the consumer at the price of good butter. Just why this should not be considered a fraud is not easy to say, but it is sanctioned by the law of our land in the interests of the dairymen.

Our Government also insists on the misbranding of the vegetable fat butter substitutes as oleomargarin, though they bear no relation to that product further than the fact that they are substitutes for butter. It also sanctions the sale of renovated butter, than which there are few more repulsive articles of food.

Considering this matter from the public health standpoint, we admit without discussion that the normal milk of any animal is a perfect food for the young of that species; that some sort of milk is the best substitute for human milk, though cow's milk is very far from being a perfect food for infants; that cow's milk is perhaps the best source of vitamin "A," and that this is contained largely in the fat content. The experiments of Hess indicate that skimmed milk can furnish nutriment for infants over long periods of time, and the conclusion either that vitamin "A" is not as necessary for these infants as experiments on rats seem to indicate, or else that skimmed milk contains a considerable proportion of this vitamin seems to be justified. In testimony before the subcommittee Dr. McCollum has laid great stress on the fact that as a nation we are undernourished. Referring to faulty bone development, as pointed out by Hess, defective teeth and lack of normal weight, he at least indicates that these are due to lack of vitamin "A," since they are used as arguments against filled milk. His own experiments indicate that skimmed milk contains about one-half the vitamin "A" that whole milk does, or in other words, that the butter fat contains about 50 per cent of vitamin "A," and the other portion of the milk 50 per cent, so that from the public health standpoint, as presented by the proponents of this bill, the whole fight is over 50 per cent of vitamin "A."

It is hard to understand just why the dairymen have become involved in this fight, since it opens up a new and advantageous market for skimmed milk. Skimmed milk is a valuable food, corresponding in its value closely to lean meat. It contains all the protein and has a high caloric value. The waste of skim milk in this country is a crime. The Department of Agriculture* estimates that the amount of skimmed milk represents annually a protein value of 913,000,000 pounds,

approximately equivalent to eight billion pounds of beef, which is said to be nearly equal the annual consumption of beef in this country.

A large amount of this goes into the making of paints, billiard and pool balls, buttons, brush backs, etc.² Dr. Carlson, of Chicago, points out very properly that the waste of all this food material is a very serious public health problem, in which everyone will agree who studies the question.

If filled milk is sold as whole milk—and we are quite ready to admit that this occurs sometimes—it is a matter which should be dealt with as a fraud just as are other food adulterations. From the testimony given by some of the investigators, who dressed a girl in poor clothing and sent her around to various groceries, it would not seem hard to collect the evidence.

The public should not be deprived of this valuable food product, which is digestible and nutritious although not a complete food, because in some instances such a product is sold as whole milk. Cheese made from skimmed milk or partially skimmed milk is extensively used as a diet in various parts of the world. In the United States cheese is not used as a substitute for meat as much as it should be. The skimmed milk which now goes for manufacturing various articles might well be made into skimmed milk cheese and sold to the vast number of people in the United States who need a cheap source of protein. It would be just as rational to exclude from interstate trade all of the vegetable oils, cotton seed, peanut, corn, and cocoanut oil, as it would be to condemn a condensed milk in which the butter fat was replaced by these vegetable oils. Many of the shortening and cooking compounds are made from the vegetable oils, and have been used for years without any detriment to the public health as far as the evidence shown.

We are in full sympathy with the dairy interests of the United States, and have repeatedly urged the more extensive use of milk and will continue to do so. We have no sympathy with the sale of oleomargarin as butter, nor the sale of filled milk as whole milk, but as said before, most states have machinery for dealing with such frauds. Even when whole milk is bought the cream is sometimes removed and the skimmed milk used as food. If all food stuffs in the manufacture and sale of which frauds have been or can be committed were excluded from trade, there would be a decided food shortage, and milk itself would be among the first to be debarred, since there are few articles which have been more adulterated, and none which require more constant attention from inspectors and health officials.

The original bill excluded from interstate trade such preparations as Dr. Gerstenberger's "S. A. M." Since it has been demonstrated that this is an excellent substitute for milk, although it contains vegetable fats and cod liver oil, a compromise has been effected so that this compound will be admitted to trade.

1. Testimony of Prof. E. E. Asgar, page 148.

2. The production of dried casein was 20,000,000 pounds in 1922.

It has not been shown by anyone that there exists in this country a vitamin "A" starvation, nor has it been shown that the sale of filled milks and butter substitutes has increased the malnutrition of our people. It is admitted by all that whole milk varies in its value according to the food of the cow, and that babies

nursing from their own mothers frequently suffer from some of the deficiency diseases due to the poor quality of the milk. With these facts in mind is it wise or just to prohibit the sale of filled milk, because of its deficiency in vitamin "A"? Certainly the public health argument has no standing in the case.

of which in the past is believed to have been the most potent engineering factor in reducing the typhoid and the general death rate.

At the present moment the water-supply engineer is often in a quandary as to how much additional expenditure he is warranted in recommending for one supply instead of another on the possible chance that a few thousand or hundred thousand or millions of dollars—according to the size of the city—thus spent will provide water that will lessen by a shade a typhoid rate almost at the vanishing point or perchance in some way which no one can clearly and positively define reduce some other human ill. The engineer, the health officer, the city councilman and the taxpayer, each and all, need a more delicate and certain index than is available, now typhoid has been reduced to so low a figure, of the causes of the past decline in typhoid and the probable cause of future decline. Have the engineer and the health officer come to the bottom of the curve so far as efforts against typhoid in many of our cities are concerned? Can the experts hereafter merely hold what they have already gained? If further reduction may be expected, and typhoid wholly eliminated, then by what means? Would the same, or perchance much less expenditure, capital and operating, reduce by two or by five per hundred thousand the death rate from some of the causes other than typhoid as against a half or a tenth on the typhoid scale? Similar questions are pertinent as to larger expenditures than are considered wise by most sewage-works engineers.

Adolph Lewisohn, president, and Hugh Frayne, vice-president, of the National Committee on Prisons and Prison Labor have offered the cooperation of their committee in investigating the evils of convict leasing. Their letter to Governor Hardee of Florida mentions their possession of the facts in the turpentine situation as one of the worst abuses in the country today. Abolishing the leasing system, they say, would accomplish little in eradicating abuses if convicts are left idle; hence the necessity of a study of every ramification of the situation, such study to be done under state supervision. Such a scientific study should evolve a constructive penal system, it is held.

Cleveland reports its garbage reduction has been self-sustaining for all but two years and shows a big profit from its by-products.

Engineering and Public Health

UNDER the above title M. N. Baker, associate editor of the *Engineering News-Record* delivered one of the DeLamar Lectures in Hygiene before the Johns Hopkins University School of Hygiene and Public Health on November 20, 1922. This was repeated with slight revision before the Sanitary Section, Boston Society of Civil Engineers, March 7, 1923.

Extracts from Mr. Baker's address follow: Engineering is the art and science of planning and doing a given task as well as it needs to be done at the least cost consistent with that end. Such a definition involves a clear idea of the aims of every endeavor, the best but least costly means of attaining those ends, and the faculty of discerning the point of diminishing returns. The latter is of great importance in view of the vast amount of engineering work still undone and that must await doing because of lack of money. Let me make this point clearer. In every city there are numerous public improvements and public services constantly making their demand upon the municipal treasury. If each demand were satisfied ideally the total cost would bankrupt the city and the taxpayer alike. Each improvement or service must therefore be considered in the light of its relative importance and take its place accordingly in a far-looking municipal program—something all too rare in American municipal life.

Returning now to the point of diminishing returns in the field of public health work: Public funds being limited, so must be the pursuit of the ideal in each branch of public-health work in order to achieve the largest possible total gain in saving of lives and sickness. The highest ideals in water supply, for instance, should be postponed when additional expense for further improvement will have no probably measurable effect on typhoid or the general death rate and while there is every reason to believe that the money needed to make the water supply ideal would, if expended on the milk supply, effect a notable reduc-

tion in tuberculosis and infant mortality. A more striking illustration would be the concentration of health department effort on garbage disposal, as is so often the case, while no really efficient work is being done to control communicable diseases or reduce infant mortality.

House and building design and construction, with particular reference to air, warmth and light, dryness, the saving of labor for housewives, and general convenience play their part in public health. Heretofore, these things have been regarded as the function of the architect, but for years now we have had heating and ventilating engineers, while in various ways the engineer is becoming more and more concerned with the construction of houses and other buildings. From the engineer we may expect a reduction in the cost of housing that can come only from saving labor and material through systemization, quantity production and like engineering methods. With a reduction in the cost of shelter may be expected a relief from the overcrowding and other evils that undermine health and spread disease. This brings us to housing in its broader aspects, of which no more need be said than that it is a part of the new science of city planning, including zoning, which after so many long years of unfortunate and shameful neglect is now beginning to receive some part of the attention which it so richly deserves.

I believe it is to city planning and its results that we must look for much of the future improvement in public health and particularly for a further reduction in the general death rate in so far as these depend upon engineering work, a reduction traceable not so much to any one readily specified measure as to improvement in many inter-related causes that go to make up community convenience, comfort and mental and physical health . . .

For many years past the engineer measured the results of his efforts in the sanitary field by the typhoid death rate. At least this was true as regards water supply, the improvement

Douglass Park at Indianapolis

By R. WALTER JARVIS, SUPERINTENDENT OF PARKS, AND RECREATION, INDIANAPOLIS, IND.

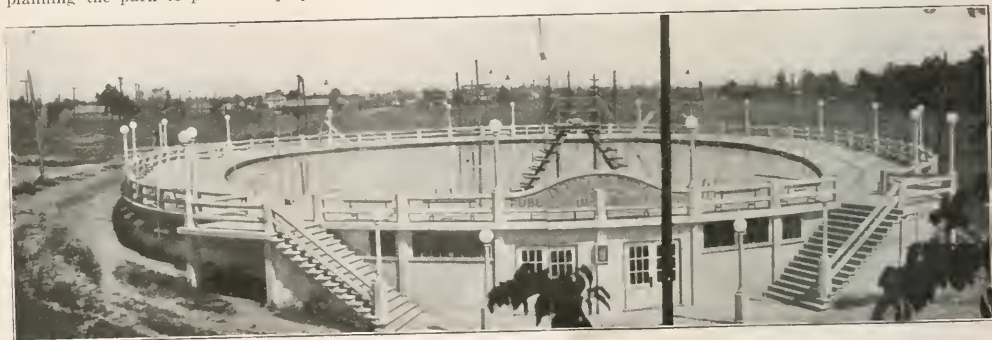
REALIZING that a large area of unoccupied ground was located in a growing neighborhood the Board of Park Commissioners of Indianapolis exercised every effort in order to acquire it for park purposes where people from all classes and all denominations could come for recreational privileges. Although the major part of the neighborhood was made up of the colored people the inhabitants of the entire section were welcome. It was thought best in planning the park to place the play-

all times. The men were especially pleased because lighted horse-shoe courts were provided for them. One of the largest and finest swimming pools of the middle west has been placed at the extreme north and arrangements have been made for all ages to participate in this type of recreation.

The complete pool cost \$70,000 and has an area of twenty thousand square feet. It is so constructed that 70 per cent of water area is outside of guard rope and has a maximum

one period of the day one end of the pool may be reserved for women only, leaving the other section for men. One section can be made shallow for smaller children. The pleasure part is taken care of by four chutes which are continually flushed by flowing water, two swings, 2 high dives, two guard ropes and two revolving rafts. Sixteen hundred lockers are provided for swimmers at any time—that means sixteen hundred can enjoy the pleasure of the pool at the same time.

The colored Y. M. C. A. has be-



This swimming pool at Douglass Park has dressing rooms below the raised walk.

grounds at the extreme east end which rose to a high hill. Every kind of apparatus available was placed on this playground; slides, swings for all ages, merry-go-rounds, maypoles, etc. Since the greater number of people were colored it was thought advisable to place colored instructors and matrons on the ground to supervise the work. In order to prepare for the adult attendance splendid tennis courts and two baseball diamonds were planned and well taken care of at

depth of 9 feet. Care was taken so that 85 per cent of the pool area is wadable and not over 5 feet in depth. This means that only 15 per cent of the area of pool is too deep for an ordinary person to wade in and the entire pool deep enough for swimming. One advantage of the shape of the pool is that the area of deep water is cut down thereby reducing volume of water needed to fill it. Another great advantage of the pool is that waders can be segregated, that is, at

come so enthusiastic over the work that is being done that special arrangements have been made by which all the boys who care to may be taught swimming free of charge.

We realized in opening Douglass Park that recreation is by far the quickest approach to any man's heart. We also understood that the people in this section were very religious and anxious to learn, but like all other citizens in Indianapolis they were desirous for recreation. The keen de-



Recreational activities at Douglass Park are supervised by colored instructors and a colored matron. Adult attendance is encouraged by the management as well as play for children.



The playgrounds are placed at the extreme east end of Douglass Park. Slides, swings for all ages, merry-go-rounds, Maypoles,—every kind of recreational apparatus is made available to the whole population.

sire in the past of the colored people for recreational centers has been demonstrated by the fine way in which they have appreciated the park and school grounds which were provided for them in Indianapolis. Douglass Park which opened for the first time during the summer of 1921, and its complete pool in 1922, is sufficient

proof that the colored folks of our city are ready and waiting for recreational opportunities. The colleges and state schools for colored people are realizing the need for trained colored workers in this field and have provided excellent courses in recreational subjects. As these trained workers instruct the people at Douglass Park

they will teach their people a keener appreciation for the need of play, play spaces, and play facilities. During 1921 and 1922 Douglass Park truly became the pivot around which all amateur athletics revolved as well as the fountain of inspiration for organized play among the younger children.

European Council for Nursing Education

BY KATHERINE M. OLMSTED, DIRECTOR, PUBLIC HEALTH NURSING, LEAGUE OF RED CROSS SOCIETIES, PARIS, FRANCE.

THE European Council for Nursing Education held its second annual meeting at the headquarters of the League of Red Cross Societies, Paris, March 12-16, 1923. About three hundred nurses from eighteen different countries attended the conference.

It was not just the interest of the special papers and the individual speakers nor even the great pleasure and satisfaction of having an opportunity to meet and become acquainted with nurses from so many countries that made this recent meeting in Paris unique and different from all other nursing conventions the author has ever attended. The spirit of unanimity and the definitely recognized interdependence of nurses and those interested in promoting nursing education was the greatest contribution this meeting gave.

As never before it was acknowledged that the interests of a group of nurses in one country are really not separate from those of any other country and that in discussing nursing education; persons not themselves nurses, often have ideas, suggestions, and plans well worth listening to and often worthy of adopting even by nurses.

Not less important was the value of having hospital administrators, Red Cross officials, doctors and persons actually responsible for the education of nurses and in some countries the lack of education, hear the many very excellent papers and discussions read by nurses who are successfully administering training schools in near by countries.

No one who attended this meeting called by nurses and conducted by nurses would question their wisdom in opening all but the business meetings freely to everyone interested in nursing if they could have seen and listened to the many earnest conversations, on all sides, heads and tongues were busy and many of us overheard remarks such as "well if they can do

that in—we can do it in—," "We can have a longer course just as well as not." "We too must have a modern central school building." In one country, where nursing standards have always been at very low level and no one at all interested in helping a few struggling nurses to improve it, a most influential and well informed woman has returned with the determination she says "to have some thing worth while for our nurses to tell about at the next conference." The conference demonstrated convincingly that we need this means of thinking together, and further that we need the benefit of joint judgment and free open debate upon our nursing problems. Just as each group is profoundly affected by the seriousness of the nursing questions arising in its own country, so it is the direct responsibility of each to help to solve them.

The European Council for Nursing Education is scarcely a year old, born only last June in Prague, it has scarcely had time to formulate its policies and as its president, Miss Newton from Belgrade, aptly remarked "we thought we had a pigeon but we find we have an ostrich." All plans are made for a small group of nurses to discuss comfortably their problems together but the spirit which brought so many nurses from countries advanced in nursing and so many advanced thinkers from countries considered very backward in nursing is a spirit and a force which cannot be dealt with easily nor carelessly.

The remarkable interest and enthusiasm of all those attending the conference gave life to a new organization and plans are being made and methods being studied in order to successfully adapt this organization to meet the needs for future work.

In the minds of many of us are the questions: What shall be the future of this organization? And is there a need for such an organization and special work to which it should consecrate itself?

It is believed that the very near future will show us that it must enter upon a much broader program than was conceived in Prague last year by the few nurses who originated the Council and who met solely and selfishly for the purpose of discussing and gaining stimulation and new ideas for themselves from those similarly occupied in other countries. Much thought will undoubtedly be put into the formation of a suitable constitution for the council but the following aims expressed in the original are worthy of survival.

(1) The further attainment of uniformly high standards in schools of nursing which are being established in Europe.

(2) The initiation of a campaign of education destined to inform the public as to: (a) The standards requisite for a fundamental education in nursing. (b) The position which the nurse should occupy in the community after her graduation.

(3) The establishment of a simple organization which will serve the nurses until such times as they are able to form their own national association and become members of the International Council of Nurses.

It has been said that successful conferences are dependent upon certain elements, of which several important ones are, leadership, the development of membership and presentation of concrete problems for solution.

Before the first few days of the meeting were finished several leaders became recognized; the first and most generally acknowledged was Baroness Mannerheim. Had we not known that she represented as president, the International Council of Nurses, had we never heard of her magnificent work for nurses in Finland and throughout the Scandinavian countries, she would still have stood forth as a leader. Distinguished above others by efficiency, strength, wisdom and a sense that she was filled with human sym-

pathetic feeling and understanding that endeared her to all. Miss Enid Newton the new president of the European Council for Nursing Education gained the admiration and respect of all by her frankness, her fairness, her tact, and her ability to look beyond the harassing problems of the week in the clear and promising future of the Council. Her strong personality and her sense of humor won all our hearts.

Membership was eagerly sought and many applications were received but, owing to the necessity of making certain changes if possible to formulate an organization coincident with and in cooperation with the International Council of Nurses, no action will be taken immediately upon membership applications received.

A great many concrete problems for solution were presented and ranged from the problems of the schoolroom to those of an organization best fitted to allow fair open discussions on all the vexed questions.

Perhaps this organization will never make a greater contribution to nursing than to have crystallized this vague group consciousness. It may well serve during these uncertain times as the medium through which we who are interested in nursing can think and work together. It has already been a clearing house for our ideas and a forerunner of our discussions. In our enquiry as to the apparent and special need for this organization let us first consider its particular make-up.

It holds a unique position as a voluntary body of the workers in the field, democratically organized and representative of all parts of Europe, all varied types of nurses; it exists alike for all, to serve each and any group in so far as its funds and its policies which should be passed upon by all, permit.

In other words, here is the official body, representing experts working in the field of nursing, to be consulted by all and developing itself to provide a particular service that will benefit all groups interested in nursing.

At present there is in Europe no other organization of this type to which individual nurses or people interested in nursing can belong.

The International Council of Nurses is a goal toward which organized nursing councils in countries advanced in nursing can and should aspire but it is to the European Council that nurses and individuals struggling toward developing nursing in its infancy, can turn for encouragement and help. The members are for the

most part pioneers in nursing in countries where there are few nurses and no national organization where nursing standards depend not upon legislation or public opinion but upon the initiative, the intelligence and the fortitude of perhaps but a few people.

It is to these people, some of whom are nurses, others Red Cross workers, physicians, health, educational, or government authorities, but all advocates of nursing standards, high or low, that the European Council for Nursing Education can best fulfil the task it has set itself to do.

New Health Officer for New Haven

Dr. John L. Rice has been appointed to fill the vacancy caused by the death of Dr. F. W. Wright who was health officer for the New Haven, Conn., Department of Health for many years.

Dr. Rice, a native of Connecticut is a man of excellent training and wide



Dr. John L. Rice, health officer appointed to fill vacancy caused by the death of Dr. F. W. Wright.

experience. He graduated from Wesleyan University in 1912; worked as a physiological chemist for a time at the Sheffield Scientific School, Yale University, and then went to the Syracuse City Health Department and Syracuse Medical School. In 1913 Dr. Rice resigned as assistant city bacteriologist of Ottawa, Canada, to take up the study of medicine at the Johns Hopkins Medical School. During his medical studies he participated in rural sanitation work carried on by the Maryland State Board of Health and the U. S. Public Health Service.

After receiving his medical degree he served as bacteriologist at the Roosevelt Hospital, New York, and

then went into the employ of the International Health Board. In this service he gained experience in many phases of public health work in Costa Rica, Guatemala, and Panama. In 1919-1920 Dr. Rice was city and county health officer, Maysville and Mason County, Kentucky, cooperating in the programs of the State Board of Health and the International Health Board. After acting as sanitary supervisor of New York state for a year Dr. Rice returned to the International Health Board work at Trinidad and in Porto Rico.

Frank W. Wright, M.D.

News of the death of Dr. Frank W. Wright, health officer of New Haven, Connecticut, for nearly a quarter of a century, has been received with regret by many workers in the field of public health. Dr. Wright was taken ill while visiting his son, Dr. L. H. Wright of Palmer, Massachusetts, and died two weeks later at the age of sixty-eight.

Dr. Wright was for many years a member of the American Public Health Association and at the last meeting in Cleveland became a Charter Fellow. His long and faithful service made him a figure of note in his community and his kindly personality endeared him to all who knew him.

Causes of Lost Time Accidents

Sanford has analyzed the lost time accidents in a group of manufacturing plants having approximately 40,000 employees. (*Safety Engineering*, Feb., 1923, *xlvi*, 2.)

The causes are as follows:

Power transmission machinery.....	0.8%
Point of operation.....	10.3%
Handling material.....	30.7%
Falling material.....	5.5%
Flying chips, emery or other dust.....	11.0%

The author further states that during 19 months of war the battle casualties of the United States were 48,000. During 19 months that accidental fatalities in the U. S. were 126,000. Of the latter, 35,000 were industrial, 91,000 occurred in homes and streets, of which group 25,000 were children of school age killed on the streets.

More than one million youths took part in the hikes, games, and sports during Boy's Week in New York. The Rotary Club, athletic associations, Boy Scouts, Hebrew Association, and Woodcraft League were supported by activities in five hundred churches. More than one hundred industries took part in observing Boys' Day in Industry.

Health Work of Committee for Devastated France

IN THE winter of 1916-1917 the American Committee for Devastated France, then in its infancy, crossed the ocean on a mission vaguely understood but inspired by the belief that this group would express to the war sufferers in France the sympathy of the American people.

Work was started in the Department of the Aisne which had been recently evacuated by the German armies on their return to the Hindenburg line. In the spring of 1917 it became necessary to decide whether the relief should be spread over a wide area or limited to organized action in restricted locations. It was decided that the latter action was the only possible course to pursue if the communities were to become once more self-sustaining.

In the offensives of March and May of the same year the mission was evacuated and followed the refugees of its region into the interior. Yet it did not lose sight of those forced to remain behind in the war zone. When the inhabitants were allowed to return in the winter of 1918 the workers were already at their posts, in a scene of desolation even greater than it had been a year before.

In the winter of 1918-1919, following the signing of the armistice, the need for relief was greater than ever. Pouring into the country were many refugees, repatriated from Germany through Switzerland. Many of them, even after the shock of the disaster that had befallen their homes, refused to leave them and set their energies to the much needed work of reconstruction.

During the winter the workshop of

the committee was called upon to make many provisional shelters in order to keep the inhabitants alive. The confidence that the inhabitants had in the committee made it possible for the workers to stimulate among the repatriated French people the formation of agricultural syndicates, agricultural cooperatives, and building cooperative societies. Quantities of clothing, food, household furniture and utensils, garden tools and other necessities have been handled by the committee. This work was discontinued in a village as soon as the French tradesmen returned and started their business anew. Aid in building construction, agriculture, public health service, home visiting and assistance, library service, and stimulation of physical training and athletics, the boy scout program, and community activities have been continued in varying amounts as the needs of the situation seem to demand.

France suffered greatly during the war. The latest evaluation of damages to property due France from Germany is officially estimated at 102 billion francs. Damages to persons is estimated at an additional seventy-eight billion francs. The cost of the war to France in proportion to her national wealth was over four times as great as the cost to the United States. France lost nearly 18.5 per cent of her mobilized men between the ages of 18 and 45, or 11.88 per cent of her entire population. In addition she has nearly a million seriously disabled men. It is under such handicaps as these that the Committee has aided France in her attempt to reconstruct and rehabilitate her devastated areas.

Material reconstruction has advanced to such a stage that the Committee no longer considers it a primary responsibility though they still have left two definite services, the agricultural syndicates of Aisne and the workshop at Blérancourt.

The moral reconstruction is now the major responsibility. Public health, libraries, and certain foyer activities still need aid but will eventually be strong enough to become a definite part of the community life after the Committee has withdrawn. General social activities including children's work, the Blérancourt Hospital, recreation, education, etc., still offer opportunities for unlimited service.

The annual report of the Committee for the year ending March 31, 1922, contained the significant statement that "First in importance among the American Committee's activities is its public health work." The report continues, "This service, with its emphasis on child hygiene, maternity care and education, and district nursing, has been of inestimable value to thousands of families in the Aisne and Rheims, not alone for actual present needs, but in education along hygienic lines, and for the future of nursing of France. It is a contribution to French community and national life that America cannot leave to fend for itself, even after the American Committee withdraws."

During the year covered by this report twenty-five nurses, the majority of them French, were employed in the Aisne and at Rheims saving the small army of undernourished boys and girls in the region, finding practical means to assist the more ma-



American Committee nurses in the Aisne, France. In the foreground, Miss Evelyn T. Walker and Mrs. Mary Breckinridge, heads of the nursing service.



Soissons, the "Goutte de Lait." The number of carriages indicate that in spite of a down-pour of rain it is a busy day within. In the foreground Little Red Riding Hood going home with her milk.



Nurses starting out on morning calls.



This baby was born in a dugout at Vauxbuin.

ture, alleviating the sufferings of the aged, and caring for pregnant mothers and babies born to a most unequal struggle for existence.

The French government reported for the Aisne an infant mortality rate of eighty-seven per thousand, while for the same period the rate was thirty-five in the region under the care of the Committee's nurses. This rate is based on frequent local count vouched for by the local authorities.

Primitive living conditions still exist in the rural sections. The story of an epidemic of dysentery (*Shiga's bacillus*) in one of the communes during the summer of 1921 gives an idea of the difficulties under which the nurses are forced to labor. "Only one of all the families afflicted had any toilet facilities whatever; this situation the nurse met for each home by having a hole dug, lined with lime, and covered by a special lid made in the Committee workshop. Preventive serum was scarce, often obtainable only by the nurses' personal visits to the Pasteur Institute, sixty miles away. When enough was to be had, the nurse gave as many as seventy-eight hypodermics in a day—in all a total of seven hundred injections of serum were given in this village of eight hundred people."

When the inhabitants of Rheims returned they found their homes destroyed. They were obliged to build all around the city on the outskirts hundreds of little houses, grouped together, built on battle-fields, no drainage, no roads, no trees, nothing but desolation. It is in these quarters of Rheims that the nurses of the A.C.D.F. have been working.

Between April 1 and Oct. 1, 1922, seventeen nurses in the Aisne and eight in Rheims made a total of 44,310 home visits, and these under most adverse conditions in a district largely rural and with a population of seventy thousand. Dispensary visits during this period exceeded thirty thou-

sand. Service was maintained in 127 villages of the Aisne as well as in the town of Soissons.

The nursing service costs the committee fifty thousand francs a month.

From April 1, 1921, to April 1, 1922, twenty-five nurses of the service cared for 12,263 children's cases and 4,477 adult cases. About a third of these were dismissed at the end of the year. The full number of cases necessitated 157,174 visits; 63,364 at dispensaries, 86,596 at homes, and 7,214 at places of business. The summary of the year's work continues:

After a year and a half of intensive work by our nurses more than half of the children in our villages still need follow-up nursing. Of a total of 3,673 children examined during 1921-1922, there were 2,121 still requiring the attention of our nurses.

An analysis of the maladies revealed by examination shows 3,911 maladies of which 926 were cured by the end of the year, 2,439 improved and 492 unimproved—these last, as a rule, were cases refusing to submit to the necessary operative or other treatment.

This is a remarkable record, both



Off for a holiday in Switzerland.

of need and of service, for it represents an average of over 10 visits to each case.

Surgical dressings and treatments numbered 50,350 in the Aisne, and 56,915 in Rheims, a total of 107,265 during the year. Milk to the amount of 36,751 litres (about 9,702 gallons) was carried to babies and old people.

Baby clinics were held regularly in nearly all of the villages; 594 of these were held by French doctors in thirteen villages, and 1,169 by nurses in sixty-eight villages. Children in the village schools received thorough medical examination, the committee nurses doing the preliminary and follow-up work. Operations for tonsils and adenoids numbered 185 and 952 cases were taken to specialists.

During nine months dental clinics in thirty-two villages cared for 1,960 patients, mostly children. The committee held demonstration clinics at the American Red Cross Child Welfare Expositions at Douai, Camprai, and Valenciennes. These clinics cared for 6,814 children between the ages of four and fourteen.

One of the committee's nurses reported finding an eight or ten months old baby absolutely alone in a far-off barrack. The baby gazed wonderingly but unafraid at the face outside the locked window. When questioned about this discovery the patron of the farm said:

Mademoiselle, it terrifies me daily, because you see, fifty metres away, one of my workmen's barracks burned, a few weeks ago, while they were in the fields, they did not know how—suppose it had been the barrack with the baby! But what can I do? This woman's husband was one of my trusted farm-hands before the war, and when he returned a *mutilé*, I kept him on and let him do what he could. He died, poor fellow, a few months ago, and his wife works on the farm. She cannot take the baby with her and there is no one with whom to leave it. I cannot afford to let her stay in the barrack and not work. I cannot send her away because she has no dwelling to go to. Ah, Madame, if we only had some place where we

could have small children taken care of!

This need of the inhabitants was met by *garderies* or nurseries and by kindergartens. During the year covered in the last annual report 67 infants were cared for daily in nurseries and 344 older children in kindergartens.

In February, 1920, the Committee took over the unpretentious but finely equipped group of barracks at Blérancourt which had up to that time been administered by the American Women's Hospital Unit. Originally planned for only twenty-five beds this was the only hospital in the seventy miles from Soissons to St. Quentin. The number of beds was soon increased to forty and later a whole new ward for maternity cases was added. While in charge of the American Committee this hospital admitted 1531 men, women, and children and 319 babies were born there.

Before the war inhabitants of these rural districts had a horror of hospitals—to be sent to one meant an illness so serious that death was staring them in the face. Blérancourt hospital has given these people a new insight into the care of the sick. As hospital facilities in the Aïnse again became adequate and there was no possibility of the Blérancourt hospital being made permanent by the French authorities, it was closed on October 31, 1922.

Every month a group of delicate or convalescent children have been sent to Geneva. The expenses of the sojourn in Switzerland are met by the Swiss Committee; the traveling expenses from Soissons to Geneva and return are paid by the French Government; and the nursing service of the American Committee has to pay only such minor expenses as food for the journey, provide additional clothing for the children who must be equipped for a three months' stay. From the organization of this service in April, 1921, up to October, 1922, its benefits have been extended to 289 children and two adults. The average gain in

weight has been five pounds and gains as large as fifteen pounds have been recorded.

Not only are these children given the benefits of good physical and moral guardianship, but many have received special care for semi-chronic eye conditions, unusual orthopedic operations, and the like.

All the features of the health work of the American Committee for Devastated France can not here receive due treatment. Most of them are of a temporary nature and can in time be taken over by the French. One branch of the work, however, will for a longer period demand the aid and encouragement of the American Committee. This is the organization of a training school for nurses. In spite of the very enviable position that France holds in the field of medical science it

nursing service of the American Committee in the Aïnse and in the various hospitals with which they have been associated has demonstrated to France what can be accomplished by the intensive work of well trained nurses in a community, as well as the assistance that a high-class nurse can be to doctor and patient in both private and hospital practice. The work of American nurses during the war served also to arouse France to her need.

The American Committee was approached by a group of French doctors headed by Prof. Calmette of the Pasteur Institute, and by other influential citizens saying, "We want to do better; we shall do everything we can to help you, but we do not know how to organize a modern nurses' training school! Won't you help us so

that we may continue to do such work as you have been doing in the Department of the Aïnse?" If it had refused to listen and act the committee would have missed a great opportunity.

To secure properly trained nurses the committee had been forced to draw practically all of its personnel from the Bordeaux school of Dr. Hamilton. Paris leads France and if a really modern school could be established there

it would mean that similar schools would spring up all over the country.

The first thought, or course, was to find a general hospital in Paris to which such a school could be attached with advantage but the difficulties proved insurmountable. Private hospitals in the city were also found out of the question. In March, 1922, negotiations were started with Dr. Oberthur, of the Hospital of Auteuil. Dr. Oberthur has a private hospital of fifty-five beds, but his life dream has been to have one of about three hundred beds where the middle class could have, at a moderate price, proper medical and surgical care, with a certain proportion of absolutely free beds. As the prospects of realizing this dream materialized he began



A lesson in child hygiene—but the child objects.

is, in its nursing service, far behind almost any other nation.

With the exception of the Florence Nightingale school at Bordeaux, none of the French training schools for nurses would be accepted as such in America or England. The young woman who takes care of the sick in the public hospitals of France is of the ward-maid type. Her lack of education and professional training is horrifying to those who consider that the nursing profession should be composed of women of good education and high moral standards; it is unbearable to think of confiding to the care of the average French nurse one who is in need of skilled attention.

The medical profession realize the need of better trained nurses. The

to realize that a hospital of this kind ought also to have a modern nurses' training school attached to it. At the same time that Dr. Oberthur was looking for a training school the Franco-American Committee was looking for a hospital. Luckily fate brought these two bodies together. Dr. Oberthur now has at hand the money to build a 350-bed hospital embracing all branches of medicine and surgery necessary for the proper training of nurses. This hospital will be ready for occupancy in October, 1923. Two of the committee's nurses are now studying the administration

of training schools at Columbia that they may be of assistance in organizing the school.

Plans are also being considered for the formation of a new school in connection with the Rue Amyot School.

The American Committee for Devastated France is the only relief organization now working in the country. Its past accomplishment and opportunities for future assistance, particularly in the field of public health, justify its continued existence and reflect great credit on those who conceived and have admirably carried the program to its present stage.

13 hide handlers, including storing hides 8, lightering 2, carting 2, goat's wool 1; 9 hide scrapers; 8 handlers of raw hides; 4 wool combers, including sheeps' wool 2, horse hair 2; 4 wool packers; 3 workmen; 3 cutters; 3 sorters; 3 watermen; 2 weighers; 2 hide hangers; 2 day laborers; and 1 each of the following specialties; fleshier, peeler, stretcher, baler, carder, spinner, beater, skinner of washed wool, dryer of washed wool, worker in washed wool, warehouse foreman, director of works, dryhide worker, dry-hide warehouseman, warehouse inspector, lighter man, dockman, custom-house inspector and mechanic.

One hundred twelve were men and forty-five women; 37 were boys of less than eighteen years of age.

Of the total, 58 worked in goat skins, 51 with wool, 13 with sheep skins, 8 with dry hides, 5 with horsehair, 1 with goats' wool, 3 with cowhides, 6 with various unclassified hides. There were 19 in which the nature of the transmission was not precisely known.

Complete cure took place in 136 of those attacked, two were rendered permanently and partially incapacitated for work and 19 died, a mortality rate of 12 per cent.

These figures have been set forth *in extenso* with the desire of indoctrinating the seriousness of this problem. The U. S. Department of Agriculture has done its work so quietly and effectively in preventing this disease that many sanitarians have been lulled into a false sense of security so far as anthrax is concerned. Nevertheless, it should be recalled that the sum total of cases in our tannery workers is not small and that not so long ago there was a very acute problem created by the spread of the disease by shaving brushes. Also it should be remembered that while most of the cases are traceable to hides or wool, any animal product may act as the vehicles of transmission, *e. g.*, bone meal, and that while the pustular form is most common, Tulloch of Dundee has reported cases which acquired by inhalation and which closely resembled cerebrospinal fever.

Buzzards, dogs, wolves, and coyotes undoubtedly play a role in the spread of the infection and it is necessary to incinerate completely all animals dying of the disease or slaughtered as an eradication measure. Inoculation with the attenuated virus is a measure of prevention, but so long as we get animal products from countries having an indifferent veterinary service, the disinfection of raw materials des-

The Ceaseless Battle of Life

TRULY the way of the human race is beset with many dangerous pitfalls and man, the indomitable, must exercise constant vigilance lest he be destroyed. He walks unshod on Mother Earth and contracts hookworm; insects attack him through the air to introduce alien animals into his body; he drinks water and is injured or killed by enemy vegetables; his food is poisoned and he has botulism; he rides in chariots of fire and is killed; he navigates the jealous seas and is drowned; he mounts the wings of an eagle and is hurled to destruction; he associates with his fellow men and exchanges infections with them, while the lower animals transmit to him a variety of ills both when they are living and when they are dead.

A large portion of the work which sanitarians are doing is that of carrying on a constant warfare against these destructive agencies. The public health workers are so to speak, the regular army which engages these enemies in combat and trains the citizen so that he may carry on the battle for himself.

One of the most stubborn of them all is anthrax, which by its spore-bearing quality is able to resist many of the preventive measures which would be ordinarily applicable against the microbic infections. A disease of animals, its causative organism is present in many animal products which man cannot do without, hence those who come into contact with certain animals and their products run the risk of having this organism enter their bodies through the skin, the lungs or the intestinal tract. Since 1910, the French have maintained in the *Service de Prospection du Travail* an office for the study

of professional anthrax and for the collection of data relative to its occurrence in various parts of the world. The results of these studies for the years 1914-1919, inclusive, have been published (*Bul. de l'Insp. du Trav.*, *xviii*, 1920, p. 313 and *Bul. Int. d'Hyg. Pub.* *xiv*, 1437) and are valuable as showing how widespread anthrax is and the way in which it attacks those who work in or handle animal products. On account of the World War, considerable difficulty was encountered in the collection of these data, and but 157 cases were reported of which the country of origin was discovered in 91 instances as follows:

Spain (goat skins) 32; Africa, 20, including North Africa 5, Suez 1, Abyssinia 4, East Africa 1, Madagascar 2; Asia, 12, including, Arabia 4, India 4, Bagdad 2, China 2; South America 12, including, Argentine 8, Uruguay 2, Brazil 1; Macedonia 6; Russia 3; Greece 2; Mediterranean basin 3; and France 1.

Of the total of 157 cases, 56 occurred in leather dressing, 48 in wool-sorting and washing, 11 in wool picking, 11 in warehousing skins, 7 in the manufacture of horsehair, 4 in lightering, 3 in general stores of dry hides, 3 in tanneries, 2 in combing wool, 2 in carting, 2 in the commerce of skins and dry hides and 1 in each of the following; wool treatment, commerce of green hides, depots of dry hides, handling hides in docks and warehouses, commerce in hair and goats wool and one unknown.

The victims fall into the following professional categories: 35 vatmen (leather-dressers); 31 wool pickers; 15 handworkers in various establishments, including leather dressers 8, hide handlers 3, dock workman 1, shearers 1, wool picker 1, scraper 1;

tinued for industries working in animal products must be practised. As an additional safeguard, rubber

gloves, aprons, and boots should be provided for workmen handling such materials.

Tuberculosis in Childhood

TUBERCULOSIS in childhood is a baffling subject; to the physician because the opportunity for infection, though practically universal, is not possible to combat without early recognition. According to Charles Hendee Smith, in the March-April issue of the *Bulletin* of the New York Tuberculosis Association, the solution of the subject finds a further handicap in the fact that many physicians seemed inclined to discount the diagnostic value of the tuberculin test except in early infancy. "I have no patience," says Dr. Smith, "with the teaching that the test means nothing after one, or two, or six years. A positive reaction always means that a child has been infected, if we exclude factors of error."

Proceeding to give minute directions for the test and for interpreting its reactions, Dr. Smith goes on to say that such a test must be relied upon for the detection of the disease in children and childhood is the most important period in the history of the disease, because it is the true incipient stage. To save life diagnosis must be arrived at long before the lung is in-

involved, because pulmonary disease is usually acute and fatal in children.

The belief that all children are infected is based upon the early figures of Hamburger, Pirquet, and Escherich, from Vienna, notoriously the most tuberculous city in the world. The American statistics are quite different is evident from the chart shown herewith. The marked contrast between the cities of Europe and America should not, however, obscure the fact of tuberculosis in children as a problem of the first magnitude in America.

Phipps Institute Looks After the Health of the Negro

That the health of the negro population is of great importance to the whole community is the assertion of the Henry Phipps Institute of Philadelphia. As servants negroes go most intimately in the homes of the whites and are a constant source of possible infection there. For 1921 the census in Philadelphia showed a population of 1,823,779 whites and 134,229 negroes. The death rate of the former was 12.46 per 100,000 and of the latter, 15.55. The rate for tuberculosis alone shows that the negro is about four times as susceptible to the disease as the white. From this it is clear that the health of the community at large depends in a measure on the well-being of the negroes.

In the early years of the Institute, the negroes who came to the clinics, more or less by accident, could seldom be induced to persist in their attendance, and no considerable progress could be made with them as individuals. This situation was changed in 1914 by adopting the principle of operating through the medium of selected negro workers. Since its beginning this clinic has treated 2,116 negro cases of which 510 cases were cared for during the past nine months. The Whittier Center was induced to employ a colored nurse to work as a member of the staff of the Institute. It has continued to support a worker at the Institute Clinic, and at the present time it pays for the services of three graduate negro nurses.

Since 1915, the Philadelphia Health



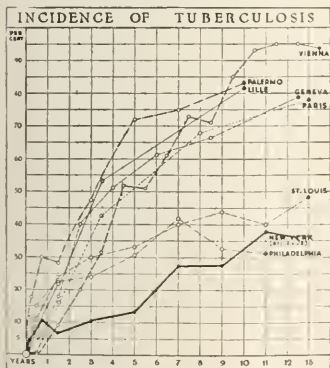
Underwood and Underwood
This youngster is excited because he has overslept himself; but no harm is done, for he is on a roof top, taking the cure for tuberculosis. Rest is an important part of the cure, and fresh air essential.

Council and Tuberculosis Committee has augmented the staff of the Phipps Institute negro clinics by paying the salaries of two negro doctors and three nurses.

In order to increase the supply of negro nurses trained in tuberculosis work, six nurses from the Mercy Hospital have been given intensive training on the subject under the direction of the head worker at the Institute. The work of Dr. Minton, who is the chief of the negro clinic, deserves special mention. Having a capable negro doctor in charge has made an appreciable difference in increasing the numbers of patients attending the clinics.

The *Journal of Personnel Research* announces, to begin with the February-March issue a series of articles by Elton Mayo, late of the University of Queensland, on the psychiatric approach to the personnel problems of modern industry. Mr. Mayo is now connected with the Department of Industrial Research of the Wharton School of Finance and Commerce, University of Pennsylvania.

The Weekly Health Review of the Detroit City of Health gives the following criterion for the determination of a state of positive health in a subject under fifty: He should be able to run a hundred yards, or play two sets of tennis, or swim a quarter of a mile without undue fatigue. If over fifty, a walk of three miles, an afternoon of golf, or a few short swims should exhilarate the subject or render him just pleasantly tired.



The importance of tuberculosis in childhood as a public health problem is plainly indicated in this chart showing the incidence in cities of infection with tuberculosis, on the basis of percentage of positive skin reactions in the tuberculin test. The upper curves represent series reported from European cities and all show a higher percentage of positive reactions than in American cities. The New York series represent about fifteen hundred consecutive cases in the wards of Bellevue Hospital, children's medical division. Pirquet and intradermal reactions were done on all cases and nearly all the negative cases were retested with increased doses of tuberculin.

Recent Progress in Sewage Sludge Dewatering

By H. BURDETT CLEVELAND, CONSULTING SANITARY ENGINEER, NEW YORK CITY.

WITHIN the past few years definite realization has come to sanitary engineers that an efficient and economical handling of sewage sludge has been the outstanding, unsolved problem of sewage disposal.

To little consideration in the design of sewage treatment works has in general been given to the ways and means of sludge disposal. This has been due, primarily, in respect to American practice, to the absence of operating experience with large sized sewage disposal units and partly to lack of foresight. We have developed the art of removing the suspended solids from the sewage without developing much art in removing these solids from the sewage solids from the sewage treatment plants.

As a generalization, sludge drying on beds at sewage disposal plants serving large communities will not meet the necessities. Suitable areas are too restricted and sensitive noses are too numerous. The Back River, or main sewage treatment plant of the City of Baltimore, for example, is situated eight miles from the center of the city in what would appear to be so isolated a site as to present no real problem of property damage from nuisance. The plant is exceptionally well operated under expert supervision but the sludge must be dried on thirty acres of open sand beds, and the total awards of city funds by various injuries to aggrieved property owners in the vicinity, after only ten years operation of the plant, already represents considerable frozen capital.

It is for more cogent reasons than the economic salvaging of fertilizer values, however worth-while this may be, that the trend in sludge treatment is toward mechanical means.

The writer had the interesting experience recently, of testing the adaptability to the problem of sludge dewatering of one of the several mechanical methods that have been suggested or tried, and has become rather intimately acquainted with the difficulties involved.

Colloids, and in the case of activated sludge still more colloids, hygroscopic or fibre encased moisture, finely divided suspended matter and fats—there are the bunkers to be overcome to arrive at an inexpensive, inoffensive and efficient separation of solids from liquids in sewage sludge and insure the full economic and sani-

tary value of sewage treatment works.

The principal types of mechanical apparatus or processes thus far employed or experimented with in dewatering sludge are filter presses, centrifuges, vacuum filters, the sulfur dioxide process and the flotation process. Pretreatment or preliminary conditioning of the sludge, especially activated sludge, by the addition of lime, sulphate of alumina or acid or through the application of heat, is generally employed.

None of these processes have thus far been worked out on a practicable basis to what might be termed the point of reasonable economy of operation. Each process is applicable and is being employed or about to be employed at various existing and proposed sewage disposal plants for want of a cheaper, more effective method. It is clearly inconsistent that the cost of reducing the volume and of finally disposing of sewage sludge, which has little or no pathological significance, should bear such a high ratio as it does today to the total cost of sewage treatment when such sludge amounts in volume to only 1/1200 or at the most (with activated sludge) to only 1/80 of the total volume of sewage.

It will be of interest to review in a general way the more recent developments in sludge dewatering.

Filter presses for sewage sludge dewatering have been utilized in this country for over twenty-five years, sludge pressing plants having been operated at Worcester and at Providence. They are of two general types, the plate press and the platen press. No marked improvements have been made in the plate type in recent years although more satisfactory results are evidently being obtained with this type at Chicago through the conditioning of the sludge with sulphate of alumina instead of lime or sulphuric acid as heretofore. The platen press is a more recent development and has given promise of increased output. The operating cost of each of these types, however, is high, and their use in the sewage disposal field does not appear at present to be extending.

Centrifuges have been tested in this country at Milwaukee, Baltimore and Cleveland. At Cleveland, a small machine of the laundry whizzer type was used, with the inside of the perforated wall lined with duck. A fairly

clear effluent was obtained and the moisture content of the wet activated sludge was reduced from 98 or 99 per cent to a moisture content of the cake of 80 per cent. In the operation, a hard packed layer one-fourth inch thick, formed against the filter cloth, so reducing the output of the centrifuge as to make its use uneconomical. Similar experiences with this type of apparatus were recorded at Milwaukee.

At Milwaukee and at Baltimore, centrifuges of the non-perforated wall type have been tested. The first machine of the solid wall type with which experiments were carried out at Milwaukee, was fitted with a one-fourth inch inlet or sludge feed pipe which caused trouble from clogging. Moreover, the centrifuge was of such construction that it was necessary to stop the drum at the end of each run to remove the dewatered material, thus seriously interfering with the hourly output.

In October, 1920, tests were begun at Milwaukee with a solid drum wall centrifuge so constructed that the effluent could pass out of the top of the drum over a flat ring with its inner periphery five to six inches inside the outer wall of the drum. The centrifuge was so designed that the drum wall could be dropped automatically, without retarding the revolutions of the drum, for the purpose of discharging the dewatered material. The operation of the centrifuge was therefore continuous except for the half minute interval at the end of each run of ten to thirty minutes when it was necessary to discontinue the feeding of wet sludge, which was also done automatically, for the purpose of discharging the dried cake.

The diameter of the drum was thirty-six inches. The depth at the outside or discharging face of the cake pocket was ten inches and at the inner face or effluent overflow zone, eighteen inches. The capacity of the drum was twenty-six gallons. The sludge inlet or feed consisted of a fixed pipe extending through the central opening in the cover to a point near the bottom of the drum. The drum was operated at 1300 to 1720 r.p.m.

This centrifuge, as described above, reduced 98 to 99 per cent moisture activated sludge to a cake moisture of 80 to 83 per cent with a maximum efficiency of removal of suspended solids of 35 to 40 per cent at a sludge

inlet rate of 10 gallons per minute and with a maximum efficiency of removal of 25 to 30 per cent at a sludge inlet rate of thirty-five gallons per minute.

When treating semi-digested settling tank sludge at Baltimore, the centrifuge as described above reduced sludge of 92.5 per cent moisture to a cake of 71 per cent moisture with an average efficiency of removal of suspended solids of 70 per cent at a sludge inlet rate of six gallons per minute and with an efficiency of removal of 60 per cent at a sludge inlet rate of twelve gallons per minute.

At Baltimore recentrifuging of the effluent was suggested to accomplish a higher total percentage of removal.

At Milwaukee tests were made to determine a feasible schedule of operation, involving return of centrifuge effluent to the activating tanks, which would daily relieve the activating system of the necessary volume of suspended solids through the centrifuging of a sufficient excess volume of wet sludge over that normally produced by the process. However, the effect of the return to the activating tanks of the fine matter contained in the centrifuge effluent greatly reduced the percentage of removal accomplished by the centrifuge and also seriously interfered with the activating process.

The tests of this machine at the Milwaukee sewage testing station and at the Back River sewage treatment plant of the city of Baltimore were carried out by the writer during 1921-22 in cooperation with Mr. T. Chalkley Hatton, chief engineer of the Milwaukee Sewerage Commission, and Mr. M. J. Ruark, division engineer of sewers for Baltimore. It was felt that if the centrifuge should prove sufficiently effective and economical in operation to meet the requirements in this country as to quality of effluent and reduction of sludge moisture, it would have in its favor several features not typical of other mechanical methods, as follows:

(1) The operation of the centrifuge would involve no man-handling of sludge or of cake; (2) it did not appear from the tests that pretreatment of the sludge with lime, sulphate of alumina or acid was necessary or advantageous; (3) the labor and maintenance costs would be relatively low; and (4) the manner of operation would reduce to a minimum the production of nuisance conditions.

However, the performance of the centrifuge did not meet the requirements of the authorities at Milwaukee or at Baltimore and it was not adopted.

The vacuum filter is not new but its successful application to sewage sludge dewatering is new, having been accomplished within the past year. The type of vacuum filter referred to, known as the Oliver vacuum filter, was first tried out at Champaign, Ill., but the tests were discontinued.

Mr. Hatton described in the *Engineering News-Record* of February 1, 1923, the general features and operating efficiencies of this filter in connection with the tests at Milwaukee on which was based the decision for its adoption for sludge dewatering at the Milwaukee sewage disposal plant. The following brief description is based on Mr. Hatton's article and on limited observation of the tests at Milwaukee.

The filter used in the tests comprised a cylindrical drum or framework covered with wire cloth and duck. The drum was thirty-six inches in diameter and about twenty inches long with fifteen square feet of filtering surface. About three to four pounds of 80 per cent moisture cake per hour per square foot of filtering surface was produced from 98 to 99 per cent moisture activated sludge. The drum revolves, partially submerged, in a vat of heated and acidified sludge, the temperature of the sludge being raised to 150° up to 180°. The sludge is first formed into a mat on the outer surface of the filter drum by a light vacuum applied to the inner surface of the drum. The water in this mat is then removed by a heavier vacuum or suction.

This process produces a very fine effluent and is continuous. Also, the cost of clothing these filters is much less than that of replacing worn out bags in filter presses. The cloth is not subjected to abrasion and can be washed in place once every six to twelve hours. Good cake was readily produced in winter as well as in summer which was not always the case with filter presses at the Milwaukee testing station.

The equipment contracted for at Milwaukee consists of thirty drum filters each twelve feet in diameter by fourteen feet in length and having some five hundred square feet of filtering surface. There would seem to be some possibility that comparative results on a full sized unit may not be as satisfactory as on the small testing model although it may be found that proper control of the different vacuums over the full length of the filter can be maintained.

The inherent disability of this type of sludge dewatering apparatus lies in the fact that for efficient results the

sludge must be prepared beforehand by both heating and chemical treatment, thus placing an added burden of cost on the process. This process, therefore, in common with other similar methods, is not a true mechanical process.

If stress is laid on the very fine effluent obtained, the continuous operation feature, the effectiveness of the process under winter as well as under summer conditions and the certainty of operation coupled with low filter cloth and manual labor costs and justification can be shown for the comparatively high power and sludge conditioning costs, this process may be said to be a very satisfactory one.

The MacLachlan reduction process has been adopted for Houston, Indianapolis and Pasadena, and a partial use of the method is being made at Gastonia, N. C. This process consists of first conditioning or coagulating the sludge with sulphur dioxide and then draining and pressing it in a continuous filter device.

The dewatering machine, as recently improved, consists of a partially submerged screen drum covered with fine wire mesh on which the solids are intercepted, raised out of the wet sludge in sheet formation and drained. The suspended matter in the wet sludge is deposited on the screen drum through the effect of a head or difference of elevation between the wet sludge in the vat and the effluent within the drum, amounting to from six to twenty-four inches, depending on the volume of sludge flow being treated. An idler roll covered with felt picks the drained solids off the screen cylinder and a wooden idler cylinder subjects the sheet of drained sludge to a pressing operation before it is automatically removed by a scraper.

One machine, 40x84 inches, fitted with a felt roll 16 inches in diameter and 88 inches long, is said to produce 1,600 pounds hourly of 83 per cent moisture cake from 98 per cent moisture activated sludge at an operating cost of between five and six dollars per ton of dry solids produced. It is claimed that an efficiency of 92.5 per cent removal of suspended solids was attained during the recent tests at Houston.

This method, while apparently not burdened with as much power and sludge preheating cost as the vacuum filter, yet involves considerable cost for pretreatment of the sludge before the actual dewatering operation is accomplished.

The flotation process has been developed by experiments carried on at

Mount Vernon, New Britain, Urbana and elsewhere, and consists of the addition of sulphuric acid to the sludge, and the heating and handling of the sludge under such conditions as to cause the suspended solids to rise to the surface. The "floated" sludge, from 99 per cent moisture activated sludge, is said to have a moisture content ranging from 84 to 90 per cent and to be easily dried.

Considerable study is being given at various sewage disposal installations and experiment stations to the possibility of decreasing present costs of sludge dewatering by mechanical appliances.

The need of a satisfactory solution of this problem has been emphasized, recently, by the increase in favor of the activated sludge process of sewage disposal and the greater difficulty of dewatering activated sludge at low cost as compared to settling or Imhof tank sludge. This feature of the activated sludge process is, at present, in addition to the relatively high operation cost of the main process, a serious argument against the adoption of the system in many instances. It may not be the controlling factor as to choice of method of sewage disposal, especially where proper disposal site area is limited, a high quality of sewage effluent is desired, or a minimum in the way of expense is not demanded, but the difficulty of handling

such sludge, if not overcome, will continue to detract from the value of this system for certain locations.

And in connection with sewage treatment works employing either plain settling tanks or two story tanks for the sedimentation of suspended solids, it cannot be said that a satisfactory state in the art has been reached or will be reached, on either sanitary or economic grounds, until a clean, cheap mechanical process for disposing of sludge, not subject to seasonal or weather conditions, has been evolved.

Pennsylvania Plats Her Charitable Institutions

A tangible result of Pennsylvania studies of institutions which is intelligible to the whole public as well as useful to the department, is the map shown below which classifies and locates all state and semi-state institutions within the commonwealth. Under the present organization the Department of Public Welfare functions through four bureaus, each manned so as to collect and utilize information in its special field. The Bureau of Assistance has supervision over medical and surgical hospitals and homes for adults which receive state aid. The Bureau of Children concerns itself with the care of dependent, defective, and delinquent children. It also dis-

tributes the Mothers' Assistance Fund. The treatment and custody of the feeble-minded and insane are supervised by the Bureau of Mental Health. Penal and correctional institutions and the management of the industries carried on by prison labor are functions of the Bureau of Restoration.

A new policy has been instituted of apportioning state aid in strict accordance with the actual service rendered and the actual cost involved, the details of which are facilitated by placing the 170 institutions caring for state patients under a uniform accounting system. The plan will likely be extended to cover all phases of state aid. Economy by effort and a reduction of expense as well as a check upon quality by service rendered are thereby accomplished.

As a further provision against overlapping of effort and inordinate expense, the Department has created a Commonwealth Committee made up of representatives from the Department of Public Welfare, and a representative of the Advisory Board of the Department of Health, of the Educational Council, and the Industrial Board. This committee serves as a clearing house for the welfare plans of all the parties represented. It also serves as a connecting link between the Board and the county and local organizations.

STATE AND SEMI-STATE INSTITUTIONS OF PENNSYLVANIA

PREPARED FOR THE INFORMATION OF THE PUBLIC BY THE

PUBLIC CHARITIES ASSOCIATION OF PENNSYLVANIA

419 SOUTH FIFTEENTH STREET, PHILADELPHIA, PA.



The Pennsylvania Department of Public Welfare, created by Act of Assembly, in May, 1921, as a preliminary to its formulation of policies, undertook a comprehensive survey of all institutions. The information acquired was put in the form of a spot map for the information of the public.

Legislative Situation in Iowa

THAT the representative farmer takes an interest in public health and is willing to spend money where he can be shown that it is going to result in improved health conditions for his state and community, is demonstrated by the record of the Fortieth General Assembly of Iowa which closed April 17. This record explodes two mistaken notions which have some currency among people who do not understand the farmer and his problems—one notion being that he has been more interested in the pedigree and welfare of his hogs than of his children, and the other being that his sole purpose in coming to the state capitol is to save money by cutting out appropriations.

Sixty per cent of the Iowa house consists of farmers—real farmers, not merely ex-farmers or business and professional men from rural communities; and there is quite a strong farm bloc in the senate; so the Iowa legislature was a typical farming legislature. It did have in mind the purpose of saving money for the state and succeeded in accomplishing a number of economies. The purpose of reducing taxes is a most praiseworthy one at all times, and it is especially natural that a legislator in a rural state should be thoroughly imbued with such purposes, in view of the fact that business conditions since 1920 have been more oppressive with the farmer than with any other business group. An understanding of these facts makes the story of health legislation in the present Iowa Assembly still more remarkable.

By a vote of eighty-seven out of a possible total of 108, the House of Representatives cheerfully swallowed the so-called Rockefeller Bill which provided for an annual appropriation of \$450,000 for five years, to match a gift of two and a quarter million dollars from the General Educational Board and the Rockefeller Foundation for the enlargement of the medical department of the state university. By a similarly comfortable margin the senate committed itself to the promotion of scientific medicine. Affirmative votes on the Sheppard-Towner appropriation for maternity and infant hygiene work were about the same as the votes on the Rockefeller appropriation.

Among other health measures passed were the appropriation for Social Hygiene work, several measures

for the eradication of bovine tuberculosis, a play ground bill, and the bill for universal compulsory physical education and practical health instruction, and training in the schools. The legislature refused to amend the county hospital law and the vital statistics law in such a manner as to render them less effective, and a number of other measures inimical to the health of the state were quietly choked off in committee or reported for indefinite postponement.

The part played by the Iowa State Medical Society through its Field Activities Committee and Legislative Committee, working in conjunction, proved very gratifying to the profession.

The chairman of the legislative committee, Dr. W. W. Pearson of Des Moines, early in the session, arranged a dinner for the members of the public health committees, and the chairmen of several other committees of the house and senate. Over fifty members of the legislature were present at this dinner. The physicians who spoke stated the object of the get-together to be solely the desire to take opportunity to express the interest of the medical profession in public health. They offered whatever information and experience might be at their command which might be helpful to the law makers. A number of legislators responded informally.

The legislative work of the state medical society was done in a quiet way with a noticeable absence of letter writing, public meetings and the other usual methods of campaigning. The society confined its activities entirely to public health measures, and was represented in this contact with individual legislators upon public health matters by the executive secretary of the Iowa Tuberculosis Association—a logical arrangement, as the latter association, being the only voluntary statewide public health organization in Iowa has a continuing interest in public health legislation—represents the lay opinion of the various counties of the state in public health matters. There was close cooperation also with the Board of Control of State Institutions, the State Board of Health, the Commission on Animal Husbandry, the Department of Public Instruction; and the legislative interests of these departments inasmuch as they related to health were made a matter of friendly concern by the medical profession. The net result

seems to be that it is generally recognized that the state medical society carried out well the purposes to which it was committed last year in the creation of the Field Activities Committee, namely to activate the doctors of the state in the direction of impersonal and unselfish support of the up-building of community health through preventive measures.

In any survey of legislative results it is always impossible to apportion the responsibility for the success or failure of any particular bill, but it is generally conceded by those who are familiar with the situation that the three more conspicuous of these health measures, namely the Rockefeller, the Sheppard-Towner and the Physical Education Bills, would not have passed had the medical profession been either opposed or indifferent to them.

The experience of the maximum-hours-for-women bill illustrates this point. This bill failed because it was made to appear that there was considerable division of sentiment among women's groups.

Several members of the legislature reported that various physicians had come to them before the opening of the session and had asked them to oppose the Sheppard-Towner appropriation. Near the beginning of the session the Field Activities Committee and the councillors of the state society made a thorough investigation of the Sheppard-Towner work to date, asking the men employed in this work to appear and answer all questions fully. They decided that the opposition of physicians in this state and the opposition of a portion of the medical fraternity throughout the country arose from lack of information on its purposes and functions. They sent out a letter to every county medical society in the state making it plain that the maternity and infant hygiene work was not a step toward state medicine, that it did not provide for any treatment or medical or nursing service, that it was educational and diagnostic only, and that it would serve both to increase the business of the local physician and improve the health of the local community.

Results already noticed are the increase of a friendly attitude on the part of large groups of lay people interested in public health toward the medical profession, an increasingly close cooperation between these elements, and a conviction of the sincerity of the organized physicians of the state in their professions of loyalty to the public health movement.

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Public Health Aspects of Drug Addiction

THE widespread prevalence of drug addiction constitutes a situation which may well provoke serious thought on the part of the profession of preventive medicine. It is no exaggeration to state that we are face to face with a condition which, if uncontrolled, may tend to undermine the very foundations of civilization itself. So serious is this threat that half-way measures will not do; the circumstances are such as to call for drastic and thoroughgoing measures. These are not the alarmist beliefs of fanatical reformers, but the sober judgments of capable physicians, wise jurists, and well balanced men and women who know from personal experience and observation the way in which the great army of drug addicts is being recruited daily and the misery and degradation which is thus produced.

It is a horrid thought that modern chemistry and therapeutics should have let loose upon humanity agents which have been diverted from their original purpose of relieving human suffering to that of debasing and destroying mankind. Prohibition, the stress of modern life, the *ignis fatuus* of a desire for new sensations, mental degeneration, and the criminal carelessness of the

medical profession in prescribing habit-forming drugs have all been blamed for this destructive blight which civilization has imposed upon itself, but these are only mildly contributory. The real cause is much simpler and far more sordid. The production and sale of narcotics pay enormous returns upon the original investment. The basic source is greedy avarice.

Great international organizations have been formed for the marketing of narcotics. They ruthlessly violate any law of God or man to carry on their debasing trade. They fearlessly corrupt customs officers, the police and the very courts themselves in order that their contraband may reach and destroy the consumer. Certain physicians have even so far prostituted their professional standards as to become panderers to habitués, and men of responsibility in the community have so yielded to the pressure of the dollar that they have protected drug peddlers from punishment by the law. From the fields of Turkey, Persia and India where the opium poppy is grown and the forests of South America and Java where *Erythroxylon coca* is raised, through the chemical works of the United States, England, France and Germany, out to the ports of the world, to centers for the distribution of the drugs, to the scoundrelly vendors and their unfortunate

victims, there runs a sinister line of bribery, smuggling, bestiality, deception, and murder, energized by lustful avarice and greed.

Up to date these dark forces have been largely combated by a small group of practising physicians, the legal machinery of the Federal government and of the various states and municipalities, and a few public spirited volunteers. In a few instances these leaders have been assisted by public health workers. They have not always displayed the greatest wisdom in their well meant efforts, but they have honestly and wholeheartedly pitted themselves against this octopus which is stretching out its tentacles into every walk of life and every stratum of society. This group is dealing with end results and consequently is failing to affect materially the elemental cause. There is a very genuine public health problem here and it is our duty to attack courageously this mental disease which menaces industry and public safety, which has invaded our hospitals, asylums, and penitentiaries and has even made serious inroads upon the army and navy. Once largely confined to the criminal classes, it is now not uncommon to find the vice in the higher walks of life and, worst of all, it is claiming as its victims many youths and adolescents. The disease must be regarded as a highly communicable infection since one of its outstanding symptoms is the desire to induce others to acquire the habit, and like other dangerous contagions, it must be fearlessly attacked and eradicated.

This is not to be done easily. There is no universal panacea for the cure or the prevention of the drug habit. It is a secret mental vice which does not show itself early in the facies or comportment of its followers. It is easily contracted, and if followed for a single week may fasten itself firmly upon the unwary. It is difficult to cure, relapses and reinfections being frequent. The dope-fiend is a potential criminal from the beginning and brooks no restriction which will prevent him from his eventual self-destruction. The forces which are producing and marketing narcotics are strongly entrenched and they will not draw back from any crime in order that they may continue their profitable occupation.

We may, and we must, arrest, prosecute, convict and punish; we may, and it is our duty, to treat the miserable habitués; we may propagandize in the hope of securing prevention through education; we may, and we should do all these things wholeheartedly, but we may do them until the end of time and never make any real progress. Just so long as there is not an absolute control of the production and sale of drugs there will be weak men to crave them and scoundrels to

sell them. The place to cut off a snake's tail is just behind the ears. The place to attack this international menace is at the source, to control the raw products at the plantation, to regulate chemical works and their output to the extent that every grain of a habit-forming drug is accounted for up to and including the point where it is administered by a physician to meet an undoubted therapeutic necessity.

The figures in regard to the production of habit-forming drugs are appalling. In 1920 there were imported into the United States 127,248 pounds of opium, approximately 6 2-3 grains per capita, enough to kill every man, woman and child between Canada and the Rio Grande. In the same year Great Britain exported over nine tons of British-made morphia to other countries is significant that over 45 per cent of the English exportations of 1921 went to France, where the international drug ring is supposed to have its headquarters. Importations of opium into the United States are reported to be falling off but cocaine is coming in in greater quantities and in far greater amounts than are necessary for the therapeutic prevention and relief of pain. It should be borne in mind that in addition to the quantities which are declared at ports of entry, an enormous amount is being smuggled into the country and delivered to consumers with devilish ingenuity. Customs seizures of narcotics at the Port of San Francisco alone are reported to exceed \$162,000 in 1922. For every dollar's worth thus seized it is probable that at least ten dollars worth is smuggled in.

Under the system developed by modern banking it is possible to transport and deliver money to any part of the world with scarcely the chance of a single loss. The same sort of system should prevail with regard to the habit-forming drugs. It is possible to put it into force if the nations of the world will get together and rigorously carry out a united policy. The Hague Committee tried to bring about such an arrangement and failed. The League of Nations now has a board sitting to formulate plans with the same object in view. The United States has sent observers to the meeting apparently to lend the moral influence of an onlooker sitting on the fence. Whatever may be our views regarding "entangling alliances" this is no time to be hanging back timidly. The international traffic in dangerous drugs is not a political question, it is a great health issue. It is an affair of the greatest possible moment. It is a responsibility which, if dodged by us or if not met in the open by our people, is going to do us an infinitude of damage. We cannot sit by as critics. We must get into the fight instead of tell-

ing the other nations what they should do and how they should do it. It is just as much our fight, just as much of our interest as would be a devastating plague epidemic in Europe, Asia or Africa. The civilized world must combine against this menace and we must not be too proud to fight an enemy which threatens the integrity of civilization.

Prevention and Cure Remain Essentially Indistinguishable

THE classical distinction between preventive and curative medicine is a simple and attractive one; but one wonders sometimes how fundamentally significant it really is.

If a water supply is purified so that the opportunity for transmitting typhoid fever by this means is eliminated, we are indeed dealing with prevention in the strictest sense. The isolation of a case of scarlet fever may, in similar fashion, protect other potential victims from the possibility of exposure. On the other hand, the work of the tuberculosis clinic, which we are apt to think of as preventive medicine, involves in its essence the detection of incipient disease, and the checking of its future development, just as truly as do the early diagnosis and the surgical treatment of the cancer. The prenatal clinic and the infant welfare station deal primarily with the well, yet one of their most important functions is again to detect incipient disease, and secure treatment that will check its further progress. The whole campaign for dietary hygiene in the schools is based largely upon the detection of the undernourished child, by systematic weighing and measuring. It is too, in a sense, the treatment of incipient disease, although the methods of treatment are hygienic rather than pharmacological.

As a matter of fact the object of most "curative" medicine is to prevent the further progress of a disease process. It is curative as applied to what has passed, but it is preventive in relation to what would have otherwise resulted in the future.

If we regard the problem philosophically the same interrelationship of prevention and cure stretches back to include every procedure of personal hygiene which is adapted to the particular idiosyncrasy of the individual. Throughout a large sector of the Public Health Campaign, prevention and cure are essentially indistinguishable. In the future the hygienist will more and more look backward to consider the personal characteristics of the individual as they have effected the present state of his health, and the physician will look forward to the development of health habits which will prevent physical disability in the future.

The Newer Developments in Nursing Education

THE report of the Rockefeller Committee on Nursing Education¹ is already beginning to bear fruit. During the month of May two announcements of the first importance were made, one in regard to a gift from Mrs. Chester Bolton of a half million dollars for a central school of nursing at Western Reserve University in Cleveland, and the other dealing with the establishment of a university school of nursing at Yale. We are not familiar as yet with the details of the Cleveland plan but the principles on which the Yale school is to be established are discussed in another column and it is clear that this step is truly of epoch-making significance in nursing education.

The new school at New Haven is to offer a course probably somewhat shorter than that now in general vogue and a course to be dominated throughout by the modern spirit of community service, which demands that both the nurse and the physician should be public health workers in the highest sense of the term. More important than any details, however, is the fact that the school at Yale will be organized as an independent school of the university under the direction of Dean Annie W. Goodrich and that it will in every way be independent of any hampering considerations, free to work out in experimental fashion the length of course and the type of course which will produce the high type of nursing service for which there is such crying need. We have other university schools of nursing which are rendering splendid service, but so far as we are aware there is no other which stands as an independent university unit with neither hospital nor medical school nor graduate school control. The Yale School faces the future untrammelled in every way, and with a leader in the person of Miss Goodrich whose experience and courage and initiative fit her most admirably for a new and constructive contribution to the cause of education.

The Work Accidents of Children— Their Prevention in New York

LARGELY with a view to discouraging the illegal employment of minors in occupations where the accident hazard is high, legislation has been introduced in New York state to provide for double accident compensation and double death benefits, in the case of a minor employed in violation of the labor law.

This legislation is based on a recent report

1. Printed in full in our columns, July, 1922.

by the Bureau of Women in Industry. The Bureau analyzed the compensated accidents—accidents which caused a disability of two weeks or longer—of children under eighteen years of age, over the period of a year.

Forty-four children whose injuries were serious enough to be of two weeks or longer duration, were illegally employed. For example, a boy twelve years of age lost two fingers in feeding meat into an electric chopper; a girl thirteen years old lost two fingers while employed at candy cutting; a boy only eleven years old employed to run an electric ice cream freezer mashed his hand while working. A boy of fifteen was injured in the operation of an elevator, while the law fixes eighteen as the minimum age for elevator operators. There were also fifteen accidents in which the child was injured cleaning machinery while in motion—another violation of the law.

The essential features of the double compensation plan are that children who are injured while employed without working permits or in prohibited occupations, shall receive in compensation two times the amount to which they would be entitled if they had been legally employed. It has been the experience elsewhere that a real deterrent to the illegal employment of children lies in the fact that when children so employed are hurt or killed in the course of their work, the employers involved are obliged to pay more in compensation than if the industrial workers were employed legally.

Another outstanding feature of the investigation is the large number of accidents occurring on metal cutting or stamping machines. This industry and this type of machine may be blamed for the largest number of compensable accidents. One factory with a normal working force of six had fifty accidents in one year—all serious and all occurring to comparatively young boys. Children under sixteen years are now prohibited from operating or working on metal cutting or stamping machines, and the report recommends that the age be extended to eighteen.

The carelessness, irresponsibility, and natural curiosity of children, coupled with their lack of coordination at the adolescent age, makes them peculiarly susceptible to accidents. Children by the very nature of their youth are less able to protect themselves than those who are more mature and, therefore, more steady. The spirit of play is much stronger in children than the spirit of work; they will play now and then in factories, regardless of the danger from machinery.

Furthermore, even when an accident is not fatal, total or partial disability to a young person involves a greater social loss than does the same

accident to an older person. The loss of a hand to a seventeen-year-old boy affects his entire working life and determines in large measure his contribution to the community. For this reason alone the protection of working boys and girls from industrial accidents is highly important.

The tendency throughout the country is gradually to raise the age limit at which children may go to work. It is hoped that the time may come soon when all children may have at least fifteen years for play and education before industry claims them.

Standard Engineering Safety Codes

THE work of the American Engineering Standards Committee¹ is one of the outgrowths of the war which is proving of substantial and increasing value. Its first meeting under its present organization was held October 19, 1918. It is made up of representatives from the leading professional engineering societies of the country and its purpose is "to serve as a national clearing house for engineering and industrial standardization, to act as the official channel of cooperation in international standardization, and to provide the information service on engineering and industrial standardization matters."

The particular aspect of the committee's work in which we are most interested is the formulation of safety codes, which appears to be one of the most important functions of the Engineering Standards Committee, since its year book for 1923 indicates that nearly forty codes have been issued or are now in process of study. The National Safety Council, the American Society of Safety Engineers, the United States Department of Labor, the International Association of Industrial Accident Boards and Commissions, and various casualty organizations have actively cooperated with the committee and of the thirty-five standards thus far finally approved by the A. E. S. C. the following ten deal with problems in which the readers of *THE NATION'S HEALTH* are more or less directly interested: Specifications for fire tests of materials and construction; code of lighting factories, mills, and other work places; safety code for the use, care, and protection of abrasive wheels; safety code for the protection of industrial workers in foundries; safety code for power presses and foot and hand presses; regulations for electric wiring and apparatus in relation to fire hazards; electrical safety code; automobile headlighting specifications; and specifications for the testing and use of permissible ex-

1. Address 29 West 39th St., New York City.

plosives; and safety code for the protection of the heads and eyes of industrial workers.

The work of the Engineering Standards Committee has so far been conducted with caution and with excellent judgment and it promises to render a far-reaching service in the field of industrial hygiene.

The Coming International Health Education Conference

KNOWLEDGE of the color, the mystery, the splendor of the world is unrolled at the feet of the children in our schools just as beautiful rugs are spread out before shoppers in an Oriental bazaar. We have learned that this knowledge is not enough. Into it must be woven health, the talisman that transforms education into a magic carpet of usefulness and power.

The National Education Association has given child health an important place in the World Conference on Education to be held in Oakland—San Francisco, from June 28 to July 6. In connection with this conference, an International Health Education Conference has been arranged to discuss the aims and ideals, the subject matter, and the methods of health education in relation to all school-age children; and, at the request of the Foreign Relations Committee of the N. E. A., the details of this conference are being planned by the American Child Health Association.

In order to get together leaders in the various fields of sound and vital health education, invitations have been issued to biologists, doctors, nurses, nutrition specialists, psychologists, physical educators, teachers, health workers, and educational administrators in seventy-two countries. The program has been prepared through the cooperation of the American Child Health Association, the Joint Committee on Health Problems in Education of the National Education Association and the American Medical Association, the American School Hygiene Association, and the Departments of Child Hygiene and Physical Education of the N. E. A.

The subjects to be discussed in the sessions of the Conference are:

Health Education in the World Today.

The Place of the Nurse in Health Education.

Contribution of Physicians and Dentists to a Health Education Program.

Contributions from the Field of Nutrition to a Health Education Program.

Physical Education in Relation to the Health Education Program.

The Essentials to be Considered in Developing a Health Education Program.

Preparation of Teachers and Supervisors to Carry on Health Education Work.

The Contribution of Non-School Agencies to the Program of Health Education.

Back of it all stand the teachers of the world unrolling their beautiful rugs of knowledge for children to buy with the hours they spend in the classrooms. These skillful, earnest teachers must be given an impelling desire to weave health-magic into the education they pass on. Training them to be worthy members of the Guild of the Magic Carpet, will be an especial concern of the International Health Education Conference.

The Field for Fan Ventilation

THE tendency to overemphasize new developments in science and to apply them where they are not properly applicable is a constant source of error and inefficiency. There is a real danger that a mistake of this kind may be made in interpreting recent advances in the practice of ventilating occupied rooms by gravity systems rather than by forced fan ventilation.

The recent report of the New York State Commission on Ventilation¹ with its conclusion that "window ventilation with ample direct radiation, window deflectors and adequate gravity exhaust, seems the most generally promising method for the ventilation of the class room where local conditions permit its use," is certain to exercise a far reaching influence on the art of ventilating school houses. On the other hand, the commission is careful to point out that "there will be many schools in which this method can not be applied. Where noise, and dirt, and odors from the street make it inconvenient to have windows open the use of the plenum system would, for instance, be clearly indicated; and where class rooms are markedly overcrowded, window ventilation would be likely to prove inadequate." Furthermore, the commission emphasizes most strongly the fact that its conclusions apply only to the school room, and that other types of buildings will require different treatment. For crowded auditoriums and factories the commission specifically states that "fan ventilation is likely to supply the only adequate solution of the problem." In particular it must be realized that the removal of dust and fumes, a procedure whose importance is more and more clearly recognized by experts in industrial hygiene, must in general be accomplished by special exhaust ventilation. The ventilating fan has its very definite place of usefulness and the improvement and simplification of school room ventilation should not obscure this fact.

1. E. P. Dutton and Company, 1923.

HEALTH IN INDUSTRY

*Problems Concerning Factory Sanitation,
Industrial Medicine, and the Health and
Efficiency of the Industrial Worker*

Notes on Industrial Medicine in Great Britain

**Lead Poisoning, Anthrax, Cancer
Are the Conditions Discussed**

By T. M. LEGGE, M. D., MEDICAL INSPECTOR OF FACTORIES, LONDON, ENGLAND.

I PROPOSE to state briefly some of the problems in industrial medicine which have presented themselves recently in Great Britain.

Lead poisoning dominates other forms of industrial poisoning, and a quite new industry—if it can be so called—that of shipbreaking, has, during the last two years, supplied as many as twenty-four cases. Curiously, just as we had learned by experience how to deal with lead dust, this new industry presents the more difficult problem of lead fume which, although in its ultimate form particulate, is in so fine a state of division that it will pass through many layers of cotton wool. The industry follows on the war, and in the scrapping of battle-ships use is made of an oxy-acetylene flame to cut through the armor plating. In addition to the paint, at the back of the plates is a layer of red lead at least an eighth of an inch in thickness. The flame, at a temperature of between 1,450 and 1,600 degrees C., causes volatilization of the lead from these surfaces. Aspiration of the fume during the process showed the amount of lead present in ten cubic meters of air to be forty-nine milligrams, and as I regard anything in excess of five milligrams dangerous, the poisoning is not difficult to understand. A workman, sometimes even after so short an exposure as three weeks, has been affected. The channel of absorption must obviously be entirely by way of the respiratory, and not the digestive, tract, and so in

New industries account for new diseases. Inspection everywhere is demanded to safeguard the workers, and every new process must be scrutinized for its inherent hazards.

Each industry constitutes a separate unit for investigation as to morbidity, general and specific, within its ranks, and hygienic codes are thus developed for its control.

The avenues of trade create international relationships in industrial medicine. Certainly the results of all research in industry should be subject to international exchange.

a measure sets at rest the dispute as to whether lead is absorbed into the system through the lungs or through the intestinal tract.

New Dangers from Lead

The operation of shipbreaking is being carried on in at least twenty-five sea ports, in some intermittently, in others as the chief business and one likely to continue for years. Periodic medical examination is the only remedial measure of value, but this is not popular with the workmen who, on showing symptoms of absorption, may be transferred from more highly paid dangerous posts to others free from risk but less remunerative. Respira-

tors of various types, with filtering material, have been tried without success. Fortunately, much of the work is done in the open air.

This, however, is not the whole story. My colleague, Dr. Bridge, found during his examination of the men employed in oxy-acetylene cutting that many of them complained of attacks of malaise and shivering coming on some hours after leaving off work, and likened to malaria by those who had served in the east during the war and suffered from this disease. These attacks showed all the characteristics of "brass founder's ague" and it was elicited that they occurred after the men had been working on craft the plates of which had been galvanized. Around the path of the flame, a white deposit of zinc oxid appeared, and in estimating the amount of zinc present in the fume given off from galvanized deck plates sixty-four milligrams in ten cubic meters of air were found. Indeed, the discomfort from this zinc fume, although not so serious in ultimate result as that from lead, is the greatest cause of complaint.

The Joint Industrial Council of the Printing and Allied Trades, at which employers and employed meet to discuss matters affecting conditions of work as well as wages, has taken interest in giving information to its members on such matters as general working rules, spread of consumption, and lead poisoning. I was asked to draw up a leaflet on the last named, and worded it as follows:

LEAD POISONING AMONG PRINTERS— HOW CAUSED AND HOW BEST PREVENTED

Lead poisoning is a risk in the printing industry, but not a great one when the number of persons employed is borne in mind. All reported cases are followed up to find out the cause which can quite definitely be said to be due to the inhalation or breathing in of either dust or fume containing lead. Thus in the last twelve years there have been 230 cases—98 compositors, 55 stereotypers, 20 linotypers, 14 monotypers, 2 electrotypers and 41 other persons mainly employed in the foundry. Of this total 160 occurred in ordinary letterpress printing, and 70 in newspaper printing works. But the most remarkable thing is that no fewer than 185 factories were involved, which means that the conditions exposing to risk of lead poisoning must be pretty much the same in nearly every printing works in the country.

Every reported case, it should be remembered, means others who are suffering from the effects of lead in a less degree.

Dust of metallic lead or the oxid of lead—the most dangerous form—given off in drossing or brushing the plunger of the lino pot, if absorbed even in small quantities, has a tendency to remain in the system. Unless, therefore, constant care and cleanliness are observed lead will go on accumulating so that in time the health may become damaged without the occurrence of any definite attack recognized as lead poisoning. The average age of printers when attacked is thirty-eight and the duration of employment fifteen years.

Handling of type metal and fresh type is harmless. The compositor gets his lead poisoning from the dust in the type cases; the stereotyper and foundry worker from drossing the molten metal, careless dumping of the dross on the floor and subsequent sweeping up and bagging operations; and the linotype from brushing the plunger, and possibly from the fine dust of metallic lead which drops down from the matrices as these are removed after contact with the slug. Finally, the debris on the floors is a cause.

As lead never enters the system directly through the skin, it can be prevented in printing works by avoiding the raising of dust.

It is to the interest of everyone to see that ventilating arrangements are as good as they can be for carrying away, at the point they are produced, dust and fume in the foundry and stereo department, and that proper trays are in place under lino and monotype machines and circular saws.

See that the dross is kept in a receptacle under the same hood as the melting pot, or, if that is impracticable, at any rate in a receptacle with a lid. *Never dump it on the floor.*

Although the temperature of the lino and mono pots is not high enough to give off lead fume, ventilating hoods and ducts, in connection with a fan, serve a threefold purpose: (1) in taking away the gas and oil fumes; (2) in keeping down the temperature

of the room and so making working conditions comfortable; and (3) in tending to draw away lead dust in the air.

Nowadays with either a dust extractor for compositors' cases in large works or a vacuum cleaner in small and with dust-proof plunger cleaners available, there is no excuse for blowing the type cases out with a bellows, or for wire-brushing the plunger in the open shop.

A worker can do much to keep fit and so make his system more resistant to lead absorption than it otherwise would be. He should pay scrupulous attention to cleanliness of the hands and teeth. Too much stress cannot be laid on the part played by bad teeth in lowering the health. The habits of the workers, intemperance, and disregard of the simple rules of health, as no one will need to be told, influence liability to lead poisoning.

Medical advice should at once be sought if signs of lead poisoning present themselves. Wrist drop will always incapacitate a man for months, and may prove permanent unless electrical treatment is obtained in time.

The interminable dispute as to the relative merits of lead and leadless paints was believed to have been advanced a stage at the International Labor Conference held in Geneva in 1920, when a draft convention was voted prohibiting (with certain exceptions) the use of white lead and sulphate of lead in the internal painting of buildings, while allowing their use for external painting, subject to certain regulations. Two committees, appointed in Great Britain in 1911, to investigate lead poisoning in house painting and coach painting, both recommended the prohibition of white lead altogether, with the exception of a small percentage.

Danger in Lead Paints

A further committee which was appointed in 1921 to re-examine, more particularly in the light of the further information which has become available since the inquiries of the committees appointed in 1911, the question of the danger from the use of lead paints, and the comparative efficiency and cost of paints containing lead and leadless paints respectively, has just reported in favor of acceptance of the fundamental principle agreed to at Geneva.

I believe that all lead poisoning in painting comes from the dust given off in dry sand papering, and that if there were no dust there would be no lead poisoning. Recently waterproof sandpaper has come on the market, and undoubtedly marks an advance in this direction. Indeed, it is considered by some, that if it were possible to enforce its use, even in the painting of private houses—into which no

inspector will ever be allowed to enter as for him to do so would be an infringement of the principle that "an Englishman's house is his castle"—it would make prohibition unnecessary. Personally, I think that some measure of prohibition on the lines of the Geneva convention meets the necessities of the case and will be able in time to remove the bugbear of lead poisoning from the painters' trade.

The committee's report should go a long way towards removing the bogey of turpentine poisoning. On this point—and it was very fully gone into in the evidence—the committee says—

Having carefully examined the available evidence we conclude that there is not sufficient ground to warrant us in accepting the view that turpentine poisoning is the cause of the leading symptoms commonly attributed to either acute or chronic lead poisoning, nor in attributing to the inhalation of the fumes of turpentine and other thinners the occurrence of chronic Bright's disease.

Another point of importance which the committee advocates is the appointment of a technical committee for the investigation of problems connected with paint technology which demand solution in the general interests, and on this committee they recommend should be represented: Paint-using departments of the Government; painters—employers and operatives; manufacturers of pigments; architects; and chemists.

The international character of anthrax among animals—which is transmitted to man through animal products such as wool, hair, skins and hides—has been brought up by discussion of the subject of disinfection and other measures for its prevention through the intervention of the International Labor Office in Geneva. Although work people are very stoical in their attitude to industrial diseases, anthrax is the one which causes alarm among them more readily than any other, no doubt because of the suddenness of its onset and the rapidity with which it progresses. Further, it is no respecter of persons, and is just as likely to attack a strong, healthy man as one who is weak. The danger also is a continuous one to the worker in infected materials. The public, however, have an erroneous idea of the fatality of the disease—it is often thought to be invariably fatal. While this is true of the rare form of internal anthrax (true wool-sorter's disease) it is far from the case in regard to external anthrax (malignant pustule) in which the fatality varies from 10 to 25 per cent. Early diagnosis and prompt treat-

ment have undoubtedly lessened the number of fatal cases. In general, the best treatment for a case of anthrax is physiological rest of the part affected, combined with intravenous injection of anti-anthrax serum—60-80 c.c. on the first day and 60 c.c. on the day following, if there has been no reaction (shown by a rise of temperature) and the general condition has not improved. Excision is unnecessary; subcutaneous injection into the abdominal wall of 30 c.c. has been successful in many cases, repeated, if necessary, on successive days. Difficulty is always met with in estimating the efficacy of different methods of treatment of a malady such as anthrax, which is capable of undergoing spontaneous cure. The examination of results of various forms of treatment in eight hundred cases of *cutaneous anthrax*—excluding the erysipelatos form—in Great Britain, support this conclusion:—

Treatment		Mortality	
	Cases	Deaths	per cent
Serum, only	200	8	4.0
Excision only	397	44	11.1
Excision and serum	174	25	14.4
No special treatment	29	14	48.3
Total	800	91	11.4

In Great Britain cases have been most numerous from the woolen industry, and the British government has erected an experimental wool disinfecting station at Liverpool to carry out the "Duckering" process (so called from the name of the inspector of factories who worked out the principle). This carries out disinfection in two stages, first by mechanical washing of the wool in a dilute alkaline solution at 102 degrees F. in order to remove the albuminous matter surrounding the anthrax spores, and then, having done that, to subject it to disinfection in two successive baths of a 2.3 per cent solution of formaldehyd at 106 degrees F. The entire process occupies 1½ hours. During the six months between April 1 and September 30, 1922, over seven million pounds of wool and hair were disinfected, of which no less than 123,000 pounds were sent voluntarily by employers fearful of the risk of anthrax in their works. At present, unfortunately, the station is not large enough to cope with all the wool and hair requiring disinfection.

It was to secure extension of this process in the countries of export that the matter was referred to the International Labor Conference.

The Advisory Committee on An-

thrax, convened by this conference, met in London in December last, and on the subject of infection from wool and hair the conclusions arrived at were: (1) That hair used in the brush-making and upholstering industries shall be disinfected before the materials are handled industrially; (2) that wool and hair to be used in the textile industry shall be disinfected before the materials are handled industrially, except in the following cases:— (a) if the country of origin is included in the schedule of countries where the danger is slight, (b) if the material to be imported has already been disinfected by a process recognized as effective, (c) if wools and long hair have to be sorted before washing, unless these products are not included in the list of harmless products, and (d) in such other cases as may be determined by the committee. The experts who had come to give evidence agreed that the proportion of wool imported into England which does not require sorting before washing is extremely small, and that it is almost always this kind of goods which gives rise to the danger of anthrax among the workers; that if it were possible to sort the wools after washing, it would be bad from the commercial point of view.

The production of cancer by specific forms of irritation was a subject somewhat fully discussed at the annual meeting of the British Medical Association in July last, and served to show how important are the figures now available from the notification by medical practitioners of epitheliomatous ulceration from pitch, tar, and paraffin in their bearing on the experimental work now being carried on in this and other countries. In this connection, Dr. A. Leitch recounted the first instance of successful experimental production of cancer by arsenic and by crude shale oils containing paraffins. The unexpected occurrence of this condition from lubricating oil was brought out by Dr. Southam and Dr. Wilson, of the Royal Infirmary, Manchester, who showed that of 141 cases of scrotal epithelioma treated in that institution between the years 1902-1922 the occupation in sixty-nine was mule spinning.

Since the requirement was placed on medical practitioners to notify epitheliomatous ulceration in 1920, one hundred persons have been so reported—one of them no less than three times and seven of them twice. Eighty-four were over 40 years of age, and the duration of employment in eighty of them was over ten years.

Mortality of Brass Workers Analyzed by Dr. Hoffman

Interesting information recently received from Frederick L. Hoffman deals with the mortality of brass workers. The secretary of the Brass Workers' Union kindly furnished Dr. Hoffman with the details of 116 deaths in the experience of that organization and the latter has classified these by causes, duration of membership in the union, length of service, and length of illness.

The analysis shows that the proportionate mortality from tuberculosis was 15.5 per cent for all ages, ranging as high as 44.4 per cent at ages 35-39. The proportionate mortality from respiratory diseases was 17.2 per cent for all ages, having been as high as 40 per cent at ages 25-29. In both these instances, however, the numbers are, unfortunately, too small for a safe generalization.

A comparison of the number of deaths with reference to length of trade life is of unusual interest. This shows that of the total 116 deaths 8 were in the group having a trade life of 1-4 years; 23 in the group having a trade life of 5-14 years; and 85 in the group having a trade life of over 15 years. Of the total 85 deaths in the last group over 75 per cent occurred between the ages of 45 and 64. "It will be observed that the major portion of the deaths occurred among members who had been fifteen years in the trade, or longer. This in itself would seem to suggest that the health-injurious consequences of employment in brass working were not as serious as has often been assumed. There have, unquestionably, been improvements during recent years, as the result of far-reaching changes in methods of ventilation and dust control."

Seventy-nine of the deaths were the result of illnesses lasting less than four months while 37 resulted from illnesses of a greater duration—"it is obvious that much of the mortality was the result of acute diseases of comparatively short duration. It would require a much longer exposure to justify definite conclusions, with a due regard to the nature of the illness dealt with."

"While the experience under consideration is not sufficient for very definite conclusions," says Dr. Hoffman, "it is certainly suggestive of a direction in which trade union data could be utilized to much better advantage than has heretofore been the case, in illustrating the complex inter-relation of occupation to health."

Industrial Rehabilitation in Oregon

A COMPLETE program, an all-embracing workmen's compensation system, should include the following: (1) A safety program that will reduce the number of industrial accidents to a minimum. (2) Compensation benefits for those who are injured, including complete medical, surgical and hospital care; payments for time loss, for permanent partial disabilities, for permanent total disabilities, and for widows and orphans and dependents in event of fatal injuries. (3) Physical rehabilitation. (4) Vocational rehabilitation. According to recent advices from Will T. Kirk, Commissioner of the State Industrial Accident Commission, Oregon has such a program, which is being carried out under the direction of the Commission in a practical way.

This state was the first to undertake the physical rehabilitation of its injured workers as a regular feature of its workmen's compensation system, and it also led the states in its vocational rehabilitation work because from the beginning the Commission was given ample funds and authority to take hold of the job in a business-like manner.

In launching its physical rehabilitation program early in 1920, the Commission undertook to put a literal interpretation upon the provision of the Oregon Workmen's Compensation law which says: "One purpose of this act is to restore the injured person as soon as possible and as nearly as possible to a condition of self-support and maintenance as an able-bodied workman, and final settlement shall not be made in any case until the Commission is satisfied that such restoration

is probably as complete as it can be made."

The Commission established a physiotherapy or physical reconstruction clinic in Portland and in Salem.

The physiotherapy department is one of the most completely equipped in the United States, and these men are given treatments to lessen time loss, and to restore function and thereby reduce the amount of permanent partial disability. It is equipped to make all sorts of casts, and supports and braces, and various appliances to meet the needs of the various cases.

All examinations of the injured men are made by surgeons who are trained in and are specializing in industrial surgery. They prescribe all treatments given, and keep in constant touch with the cases.

Many cases would have a much more rapid and complete recovery if physiotherapy could be instituted almost immediately following the injury. In order to get in touch with such cases, it would be necessary to have the physiotherapy department in the hospital, which so far has not seemed practical because the Commission does not maintain an industrial hospital. The patients are scattered among the various hospitals. A number of physicians, however, are now calling upon the Commission to send physiotherapy aides to the hospitals to treat their cases.

When the department was first opened the physicians were slow to give their cooperation, but now practically all physicians have come to see the benefits and are cooperating.

From seventy-five to one hundred

men are being treated daily by the Commission in its physiotherapy clinics, and while it is not possible to give exact figures showing the saving being made it is safe to say that many times the cost of the clinics is being saved by reducing the expenditures for time loss and permanent partial disabilities. Also the state is saving itself from an increasing number of permanent cripples, as hundreds of men are being restored their earning power who otherwise would be much more seriously handicapped by the results of their injuries.

After all has been done to restore a man physically, if he is still unable to return to his former employment, he is eligible for vocational retraining. During the period of training his compensation allowance is added to from the rehabilitation fund sufficiently to entirely support himself and family. The Commission also pays all cost of training, such as tuition and supplies.

These men are being retrained in the various vocational schools. If there is no school which teaches the particular trade the injured man wants, then he is placed on the job as an apprentice. In carrying on this work, the Commission has eliminated all red tape and endeavors to handle each case in as direct and simple a manner as possible. Excellent results have been obtained. Approximately 140 men have finished training and have been returned to the industries, while 40 men are now in course of training.

Minneapolis has constructed 160 courts for men and women to pitch horse shoes in 26 neighborhood parks.



A view of mechanical apparatus for forced exercises employed for the restoration of lost function.



Using arm and leg whirlpool baths preceding massage treatments in the rehabilitation of injured workmen.

Necessary Care of the Foot in Industry

Periodic Examination and Regular Daily Foot Exercises Are Essential

BY JACOB GROSSMAN, M.D., CHIEF OF THE ORTHOPEDIC CLINIC, LEBANON HOSPITAL; CHIEF OF THE ORTHOPEDIC, STUYVESANT POLYCLINIC; JUNIOR ADJUNCT ORTHOPEDIC SURGEON, LEBANON HOSPITAL, NEW YORK CITY.

THE erect attitude of man demands that the human foot shall be an organ for balancing the body in a much greater degree than in most other animals. Many of the disabilities of the foot and ankle are due to conditions disturbing its proper balance and therefore giving rise to complaints of weakness or pain from undue strain of such structures as ligaments and joint capsules, or undue pressure on bony structures and the parts covering them.

On examining the mechanism of the foot it is found to be divisible into several elements in each of which disturbances of balance with corresponding disturbances of function may occur and, when it comes to treatment, the same principles apply whether the original cause is direct trauma or some other disturbing factor.

The importance of the care of the feet cannot be overestimated. The proper fitting or adjusting of shoes, the correction of faulty habits of use, with the overcoming of elements of weakness, as well as the direction of the hygiene of the feet, are factors upon which depend the fitness for duty of large numbers of industrial workers.

The average individual wears shoes which are as small as can be used without actual discomfort. The socks worn are of such texture as to occupy but little space. Such coverings of the feet may meet the needs of some workers, especially those who pursue sedentary occupations in which the physical activities are slight. However, they are harmful and inadequate where walking and standing are required, since the action of the muscles of the feet are interfered with. Interference with proper action of the

muscles tends to weaken them. Weak foot muscles usually predispose the individuals to weak or flat feet.

Some occupations, such for example, the pursuits of salespeople, policemen, lettercarriers, or waiters, demand the hardest kind of use of the feet and, to make this possible the shoe covering should interfere the least that is possible with foot action, while there should be ample room for warm soft socks, not only to protect the feet from chafing, but to furnish an absorbent for the moisture that will be developed. Corns, both hard and soft, bunions, callosities, deformed

worn previously and with relatively narrow widths. Sizes as large as this are needed especially in the winter when the use of warmer and thicker socks is expected. The common habit of simply increasing the width of the shoe without increasing the length is to be carefully avoided since it results in added cramping of the toes and allows the feet to spread, thus increasing the potential difficulty that exists naturally.

In fitting, the individual should stand with the shoe on and there should be at least three quarters of an inch between the tip of the great toe and the end of the upper part of the shoe when the full weight is borne upon the foot.

While these precautions are important for men or women with relatively normal feet in order to lessen as much as possible the development of later weakness, it is of greater importance for the large number of individuals with weak feet, which inevitably exists.

The commonest cause of foot deformities and disabilities, as met with in industrial life, is poorly fitting conventional footwear. Of course there are other factors which tend to aggravate the symptoms, but the main cause is shoes which do not fit the foot properly. One often hears the term "breaking in the shoe," when new shoes are worn. This term is misapplied, as what really happens is that the foot is "broken

in." The foot, being more flexible than a shoe, naturally is more easily deformed. This cramping of the foot continues until the foot has assumed the shape of the shoe, at which time the shoe is said to have been "broken in." In other words, the foot is made to fit the shoe, with consequent dam-



X-ray picture of feet damaged by conventional shoes. Note the displacement and cramping of bones.

toes, blebs, and many other foot ailments could all be avoided, if careful attention were to be given to the proper fitting of shoes and socks.

It is not uncommon to find that practically all men and women need shoes that are from a size and a half to two sizes longer than had been



Bunions and hammer toes.

age to the muscles, toes, and arches.

Fortunately, in industrial life, the laborers rarely possess such disabilities and deformities. Their foot disabilities result from injuries and inflammatory processes in and about the foot. They usually wear very broad-soled shoes which also fit them properly in the length. One rarely, if ever, can see these individuals seeking relief for corns, bunions and cramped toes. We should profit from their experience and educate every one in the advantages to be gained by wearing of proper, anatomically correct footwear.

The office workers and the fashionably dressed individuals are not blessed with such good fortune. They usually wear fashionable, conventional shoes with the inevitable resulting damage to the feet and the long train of symptoms referable to it.

The feet should be examined periodically, just as are the teeth, eyes, heart and lungs, and where the indication exists, proper treatment should be instituted.

The proper precautions necessary are first, good anatomically correct shoes and second, foot exercises. These exercises should be performed regularly, for fifteen minute periods, twice a day. Bicycling, tip-toe exercises, raising the body weight while standing upon the outer borders of the feet, are very efficient ones to practise.

Where there is a tendency towards weak or flat feet, the inner borders of the soles and heels should be built somewhat thicker than the outer borders, the amount of thickening depending upon the degree of weakness present. The usual thickness that is

inserted is about three-eighths of an inch. The object of this wedge of leather is to transfer the weight of the body from the inner border of the foot to the outer border, in that way relieving the arch of the foot from undue strain. Where, in spite of the fact that proper precautions have been taken and foot pain and disability still persist, proper arch supports may have to be resorted to, before relief can be obtained.

The arch supports are made of steel and are fashioned after a plaster model, made from the foot of the patient. These arch supports must be made for each individual and should be altered from time to time so as to conform with the changes taking place under their use. They should be worn at short intervals at first, gradually increasing the length of time, as tolerance is established, when they can be worn the entire day.

In acute weak or flat feet, that is, the type in which the symptoms come on suddenly, rest in bed, followed by strapping with adhesive plaster, gives the quickest relief.

There is another type of weak or flat feet, which does not respond to the treatment just outlined. This type is known as rigid or stiff weak feet. It is one in which the arch is not only flat, but the movements of the foot are restricted. Fortunately, this type of weak foot is not as common as the flaccid or loose type. For a patient who must be returned to his work as soon as possible, because of financial and other responsibilities, the best method of treatment is to break up the stiffness under an anesthetic and applying plaster-of-Paris bandages. The bandages should be retained for a period of thirty days. After the thirty days have elapsed, the plaster bandages should be removed and impressions of the feet taken, from which the models are made. From these models the arch supports are fashioned. The feet should then be replaced in the plaster bandages until the arch supports are ready. This usually is from four days to a week later.

After the braces are ready, a good orthopedic shoe having an elevation of one-half an inch on the inner border of the soles and heels should be prescribed. It is very important to impress upon the patient that the treatment does not cease at this stage. He should still practise the exercises and if possible should have electric baking and massage for his feet. This treatment should be continued until all the movements of the feet are free and painless.

Bunions are another source of suffering and disability. They are usually associated with flat feet and usually result from wearing narrow shoes. They are deformities located in the first joint of the big toe, characterized by a deflection of the big toe, with in many instances, an enlargement of a small sac, which sac forms the bunion. The degree of deflection may vary from a very slight one to one that is so marked that the big toe may lie either over or under the second toe. In some of these latter instances the patients walk upon their big toes.

In the normal foot the toes are straight, lie flat, and can be moved downward. The inner side of the heel, the inner side of the first joint of the big toe and the inner side of the tip of the big toe lie in a straight line so that in a normal foot a ruler applied to the first two points should come in contact with the inner side of the tip of the big toe. The conventional shoe is not made to allow this relationship to exist. The inner border of the conventional shoe is not straight. It is only partially straight to a point just behind the first joint of the big toe, beyond which it curves abruptly outward to meet the outer border of the shoe. A normal foot pressed into a shoe of this type will soon assume the same shape with the consequent outward deflection of the first joint of the big toe and an inward deflection of the little toe. The skin overlying the prominence formed by the bunion is not affected in the early cases. Later it becomes inflamed and in some instances may become the site of an infection.

The symptoms of a bunion depends



Extensive callus formation on the soles of the feet.

upon the condition present. As a rule there is pain in the big toe, redness, local heat and swelling. When an infection of the bunion occurs there usually is aggravation of these symptoms plus the addition of pus.

Bunions are preventable deformities. People should be educated to wear anatomically correct shoes in preference to the conventional. They should be impressed with the dangers that may arise from forcing their feet into shoes that are too narrow for them. The writer has observed by actual measurements that the average foot is one inch wider than the shoe worn by the individual. These shoes are not only too narrow but are from one to two sizes too long.

In mild cases of bunion a proper shoe will usually prevent further development of the deformity. Exercises of the toes may prove of assistance. In some instances felt wedges placed between the first and second toes have proved of value.

When inflammation is present, the application of wet dressings for a number of days will usually overcome it. During this stage it is of advantage to pad the inflamed area with a piece of felt perforated at its center. This will protect the sore spot from further irritation of the shoe.

Strapping the toe in such a manner as to straighten it has proved of value in mild cases.

When, in spite of these precautions, the deformity continues to progress,

or in cases where a well marked deformity already exists, operative interference is necessary before one can expect a satisfactory outcome. The operation should not be performed while there is any inflammation of the bunion or the surrounding tissues. It should aim not only to correct the deformity but also to preserve motion in the first joint of the big toe.

Hammer toe is a deformity of the toe, usually the second, occasionally several, characterized by bending of the toes in a hooked manner. The prominent knuckle which results, is usually the site of painful corns.

Some individuals are born with hammer toes. The common cause however, is poorly fitting and tight shoes. Socks that are too short are also responsible for the production of hammer toes in some instances. Hammer toes are often associated with bunions and a flat anterior arch.

As a rule the patients seek relief from the pain resulting from the corns, which form on the top of and tip of the toe. Occasionally they will seek relief for cosmetic purposes. Total disability is not rare. The treatment is distinctly operative, the object of which is to straighten the bent toes.

Metatarsalgia is a painful disability of the foot due to a flattening of the anterior arch. Pain is characteristic and is usually referred to the fourth toe, occasionally to the third and the second. The pain is stabbing or burning in character. When there is a callus on the sole of the foot, pain and a burning sensation are referred to that area. Disability as the result of the deformity is not uncommon.

As this condition is commonly the result of wearing poorly fitting shoes and socks, the first thing to do is to see that anatomically correct shoes and well fitting socks are substituted, before treatment is instituted. As a rule good shoes, with exercises, will usually suffice to obtain satisfactory results. Occasionally we must resort to a support and any one which will maintain the anterior arch in its proper position will be satisfactory. For relief of the acute pain a pad of felt retained in position by adhesive plaster, will usually prove effective.

Corns, another product of improper footwear, are small localized thickenings of the skin, the peripheral part consisting of a number of layers of parallel epidermic cells, and the central portion being formed by a dense mass which presses on the papillae and the dermis and causes more or less atrophy of these structures. Not infrequently a small bursa forms be-



Padding of the feet to relieve symptoms resulting from callus on soles.

neath the center of the corn, and, if the irritation persist, inflammation and suppuration may occur in it and the condition thus produced is known as a suppurating corn. Corns are usually found on the outer side of the fifth toe and the back of the second, third and fourth toes.

The symptoms are chiefly pain, aggravated by the changes of weather and the wearing of socks and shoes. When the shoes and socks are removed, relief is usually obtained, except in cases where inflammatory processes have commenced. The pain at these times are of the throbbing, pulsating variety.

Corns usually result from shoes that are either too tight or too loose. In the former instance pressure is produced and in the latter friction. Imperfections in the socks, such as knots in the worsted or poor workmanship in the darning, are also causative factors.

Soft corns usually are found in between the toes. They result from pressure of the shoes, with retained perspiration, which is unable to escape. They are white, macerated growths.

In the treatment, absolute cleanliness of the feet must be insisted upon. The part must be kept dry and pressure on any prominent points avoided. Pointed shoes must be especially avoided. When a corn has formed, all pressure should be taken off it and not infrequently the avoidance of pressure alone is sufficient to lead to the separation of the dense core and to a complete disappearance of the trouble.

Pressure may be avoided in various



Cyst on the back of the big toe which produced a great amount of suffering which was relieved after its removal.

ways: when the corn is situated between two adjacent toes, a piece of felt inserted between them, so as to prevent pressing on one another, will relieve the pressure and so bring about a cure. In the sole, pressure is best relieved by a hollow ring-pad, the corn being made to occupy the center of the ring. The disappearance of the corn may be much accelerated by paring down the dense core with a razor, after the toe has had a prolonged soaking in hot water. In paring down the thick epidermis care must be taken not to go deep enough to injure the living tissues, because the epidermis of a corn often contains much septic material which may be introduced through the incision in the skin and lead to serious infection.

As a rule, after the source of pressure has been removed and the corn has been pared several times, it is not difficult to pick out its core with a needle, when the skin of the part will very soon resume its normal appearance if further pressure be avoided. When the corn is large, it is well after paring it to apply salicylic collodion once a day repeating the paring if necessary about once a week. If the corn is situated between the toes, care must be taken to keep the latter well apart until the collodion is thoroughly dry.

When there is a suppurating corn, the patient should be made to rest and the abscess should be opened by an incision through the center of the corn. The pus usually forms in the bursa beneath the base of the corn and, though only small in amount, may from the tension under which it is retained cause exquisite pain long before it gives rise to fluctuation or any other characteristic sign of an abscess. When the corn has been cut through and the pus let out, the relief is immediate. The entire corn which is undermined by the abscess, should then be clipped away with scissors and wet dressings applied. They should be changed frequently and continued until all acute symptoms have subsided.

Blisters on the feet are occasionally encountered. They are as a rule of little moment, especially if properly treated, but they may give rise to great inconvenience and may prevent the patient from walking. This is especially so of policemen, letter-carriers and others who must walk and stand a great deal of the time. They occur about the heel, the instep or the toes. A blister is of importance partly from the physical pain in walking caused by the irritation of exposed nerve ends and partly from the sus-



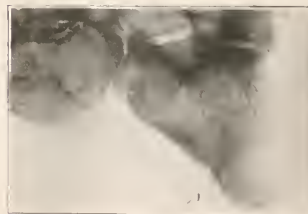
Broken needle in the region of the longitudinal arch of the foot, which produced symptoms simulating those of a "flat foot."

ceptibility to infection, lymphangitis, cellulitis, etc., that have always to be reckoned with in these cases.

The preventive treatment must not be neglected. It consists mainly in observing scrupulous cleanliness of the feet and avoiding tight or too loose shoes, or undue pressure or friction on any one particular part. A further precautionary measure, which it is well to employ is to rub the feet well with fat or tallow.

When blisters have occurred the best plan is to puncture them at their most dependent part after having washed them well in any antiseptic solution, so as to disinfect the surface. After the fluid they contain has escaped, suitable measures must be taken to prevent any further friction, so that the separated epithelium may remain in contact with the raw surface beneath and protect it against external sources of irritation. If possible, rest should be enforced. If the patient is compelled to get about, some form of hollow pad designed to keep the pressure off the blister should also be provided. When it is merely necessary to prevent the surface of the blister from being irritated by the clothes, a very useful method is to protect the affected area by means of a perforated convex celluloid shield.

Callosities are indurated, prominent yellowish portions of skin, shading off at their edges and consisting essentially of thickening of the horny layer



X-ray picture of a "spur" on the heel bone (os calcis).

of the epidermis. They are due to repeated friction and may be preceded by blisters. Relief of the pressure will lead to disappearance of the callosity, but while it lasts the callosity is often extremely painful and a bursa may form beneath it and become inflamed or suppurate.

When the callosity is causing pain, it is well to shave off as much of the thickened epidermis as possible, after softening it by prolonged soaking in water as hot as can be borne, and then to apply the salicylic collodion. This application is to be repeated night and morning. This should be combined with the use of a hollow pad to prevent pressure. The pad should overlap the thickened area for three-quarters of an inch in all directions and a hole corresponding in size to the callosity should be cut in its center. This treatment will usually lead to the disappearance of the affection.

Hypertrophy of the nails of the toes is not an uncommon cause of disability in industry. The nail is usually thickened and marked by transverse depressions, while its tip becomes unduly curved. In some individuals the nail of the great toe may assume the shape of a horn, the point of which turns over towards the sole or curves round and threatens to grow into the nail matrix or the free end of the toe. This affection often results from inflammation or injury.

When a nail that is subject to hypertrophy assumes the shape of a horn, it must be carefully pared, as otherwise its tip will grow into the matrix and cause ulceration. When the horn is very massive and dense, the entire nail and its matrix may require removal.

Contusions of the nails are often followed by separation of the nail from its beds. The usual effect of the contusion is to cause hemorrhage between the nail and the matrix. When the latter has been badly contused and blood is seen as a black mass beneath the nail, separation of the latter can sometimes be prevented by making a hole through it over the hemorrhage so as to allow the blood to escape. This is easily done by scraping with a knife until the nail is thin enough to permit of the introduction of one blade of a pair of sharp-pointed scissors. The operation is quite painless. A wet dressing should be applied to prevent the occurrence of suppuration beneath the nail.

Foreign bodies lodged beneath the nail should be removed at once, because they not only cause much pain

at the time, but are apt to lead to infection, and possibly irregular destruction of the matrix and consequent deformity of the nail. After extraction of the foreign body it is a good plan to snip away the portion of the nail beneath which it lay, with sharp-pointed scissors, and then to apply a wet dressing for twenty-four hours. Unless this is done, there is considerable danger of sepsis, as there is little chance of the septic products escaping freely should the wound suppurate.

Another condition which gives rise to a great deal of trouble is that known as lateral onychia, or as it is commonly called, from the fact that it exclusively affects the toe, "ingrowing toe-nail." In this condition there is inflammation of the matrix and the skin at the side of the nail, generally on the outer side of the great toe. It usually occurs in young adults of the working class, who have much walking to do, who do not keep the feet clean, who wear badly fitting shoes and cut the great toe nail so short that it does not project beyond the soft parts. The result is that the nail is pressed down and irritates the lateral fissure or, what comes to the same thing, the soft parts of the toe are pressed up against the nail. Hence the affection, as a rule, occurs near the free end of the nail. It begins with slight pain and swelling, which impede walking. Ulceration soon occurs and spreads backwards along the lateral groove. In bad cases the supuration is abundant and fetid; there is a good deal of swelling and the granulations are exuberant. The condition is often serious on account of the pain and lameness it induces and also on account of the risk of lymphangitis.

The treatment will vary according to the stage of the disease, but in all cases what may be termed the hygiene of the foot should be carefully attended to. The nails should be cut square and their edges should project slightly beyond the soft parts. The feet should be kept clean, the socks changed frequently and the patient should wear anatomically correct shoes. If the case is seen before any ulceration has occurred, it sometimes suffices to introduce a minute pad of cotton between the nail and the lateral groove so as to take off the pressure of the edge of the nail, the other points in the hygiene of the foot being carefully attended to. This procedure is most likely to succeed when the nail is thick and well developed. When it is thin and papery it is of little use. If the ulceration has



The ordinary conventional shoe. Note the abnormal attitude of the feet.

taken place, however, this plan will not suffice.

In the later stages, various other methods are resorted to, but all, with one exception, are more or less ineffectual. This one is an operation, the object of which is to remove part of the nail and destroy the matrix, so that the nail does not grow back again.

Injuries and strains about the insertion of the heel cord are marked by pain about the back of the heel which is aggravated by walking and relieved by rest, but the pain recurs if the patient is tempted to take exercise. The condition may be divided into three types:

Tenosynovitis in which there is swelling due to effusion within the tendon sheath. This swelling extends some distance up the tendon and is both palpable and visible.

The treatment is counter-irritation, firm bandaging and rest. When the acute stage is past, the patient may be allowed to walk limited distances with the heel of the shoe raised three-quarters of an inch, so as to relax the tendon and diminish the strain. If the condition tends to become chronic, the actual cautery may be used with great benefit.

The second type is an inflammation of the bursa under the insertion of the tendon into the heel bone (os calcis). This is diagnosed by localizing the



A—Conventional shoe with a French heel. B—Good orthopedic shoe. Note expansion back. Very convenient for people with swelling of the lower limbs.

tenderness at the site of the bursa and by detecting a small area of fluctuation.

The treatment consists of relaxing the tendon by raising the heel of the shoe three-quarters of an inch. Apply a band of strapping round the leg above the malleoli to act like the wristlet worn by workmen who have strained a tendon at the wrist. The patient should be instructed to walk a little every day, but should not be allowed to do an indefinite amount of walking.

The third type is a periostitis at the insertion of the heel cord, due to strain of the insertion.

The diagnosis is made by localizing the tenderness on pressure a little lower down than in the case of bursitis and by the absence of deep fluctuation in the bursa beneath the tendon. Treatment by rest is the same as for the preceding condition.

Both these last mentioned conditions may be present simultaneously and become chronic. The best treatment then is first to puncture the bursa or the inflamed area of the periosteum several times with a hot needle.

Irregular fibrous masses are sometimes noted in the heel cord. These are usually the result of partial ruptures and if large and persistently painful they should be removed.

Spurs of bone under the heel bone running forward into the plantar fascia or short muscles of the foot are frequently seen. They often cause no symptoms. On the other hand, if the patient accidentally jumps on to a stone and bruises the periosteum over one of these spurs it may become enlarged or a bursa may develop under it. After this, the patient feels pain every time he puts his heel on the ground.

The proper treatment is to remove the spur and tissue around it to make sure of clearing out the bursa and any chronically inflamed periosteum. If for any reason operative interference should be delayed then a felt pad applied to the heel will usually give temporary relief.

Osteitis and periostitis of the heel bone often arise from bruising of the bone by a jump or a fall from a height. There may be no gross fracture, only some crumbling of the lamellae, which may be seen in a good x-ray. When a fracture occurs, the disability is often due to bony irregularities on the under surface of the bone.

Treatment is often unsatisfactory and if the bony masses are felt in the sole under the heel they should be removed. Palliative measures are of no use.

The foot is often the seat of injury. The injury may either damage the soft parts or the bones.

An overstretching or a sudden descent from a height on to the sole may lead to a rupture of a portion of the plantar fascia. The injury is accompanied by great pain at the time. Occasionally imperfect union of the ruptured fascia may lead to much pain and tenderness whenever the patient bears his weight upon the foot.

The main object in the treatment must be complete rest, so as to allow the ruptured fibres to unite. When the plantar fascia has been ruptured, the foot should be put up in plaster of Paris, with the instep fully arched by bending the toes downwards, so as to relax the fascia as much as possible. The plaster casing should be kept on for two weeks. If it is kept on too long, the fascia is apt to contract and there may be difficulty in obtaining free extension of the foot afterwards. When the plaster has been removed, care must be taken to prevent any sudden strain or great weight being thrown upon the arch of the instep for some time. Massage is useful.

Contusion of the muscles of the foot may sometimes give rise to considerable mischief. A contusion leads to infiltration of blood among the muscle fibres, which interferes with their action and often causes temporary paralysis. When struck, the muscle contracts, following which there may be fibrillary twitchings, after which the muscle relaxes and may not recover its power for two or three days. When permanent paralysis of a muscle follows a blow, it is usually due to damage to its nerve supply rather than to injury of the muscle fibres themselves.

Hemorrhage into a muscle may be followed by various troubles: there may be adhesion of the muscular fibres to each other, or fibrosis and consequent impairment of function. In some cases calcareous salts are deposited in the muscle and calcification occurs; in others a true ossification occurs. Occasionally the effused blood is neither absorbed nor organized, but becomes encysted and forms a blood-cyst in the substance of the muscle.

The part should be placed completely at rest until the hemorrhage has ceased; when this has occurred, attempts are made to get rid of the effused blood as rapidly as possible by the employment of suitable massage. Massage should consist at first, of gentle rubbing in the upward direction for twenty minutes at a time,

twice a day. In a few days the other method employed by masseurs for breaking up the exudation may also be used. Each sitting should be gradually lengthened up to half or three-quarters of an hour at a time, and the massage should be persisted in for at least two or three weeks.

When the effusion is large and does not become absorbed readily, the best plan is to make a curved incision over one side of the swelling, expose the muscle, turn out the clots and put in a drainage tube for two or three days. Massage and manipulations should be employed as soon as the wound has healed.

Incised wounds of the muscles of the foot are of no particular moment



A very good orthopedic shoe for women.

unless the incision is transverse to the direction of the muscle fibres.

Punctured wounds over muscles often do not injure the muscle, as it contracts and slides out of the way, but occasionally some of the fibres are divided and retract and leave an irregular gap in the muscle. When the incision is large and, particularly, when it is transverse to the direction of the muscle fibres, considerable retraction takes place and serious functional disability may result unless means be taken to restore the continuity of the muscle.

When a muscle has been divided transversely through the greater part of its width, an attempt must be made to approximate the divided ends by means of sutures. A drainage tube should be inserted and the limb placed upon a splint in the position that ensures full relaxation of the muscle.

Full muscular relaxation should be maintained for three days and then may be diminished daily until, in the course of two weeks, the muscle is placed fully upon the stretch. It is important not to keep the muscle in the fully relaxed position too long, because a certain amount of adhesion is likely to form between the line of suture and the tissues around and if possible, this should occur when the muscle is fully extended. The muscular contractions will then pull upon and gradually stretch the adhesions. The patient should move the muscle voluntarily in about four weeks, but up till then only passive movement should be resorted to. If firm adhesions should form between the line of union in the muscle and the other soft parts, massage and faradism are of great assistance in breaking them up. If necessary, they may be divided with a tenotomy knife.

Rupture of a muscle may occur without an external wound and results from violent, irregular or incoordinated movement. An actual rupture of muscle is much less common than is rupture of a tendon. It generally occurs in men and is usually partial. In the foot the muscles most commonly ruptured are the plantaris and the heel cord. The symptoms accompanying the accident are sudden pain in the part, with a sensation of tearing, followed by loss of power in the affected muscle. There is a characteristic depression over the seat of rupture and a swelling immediately above it, due to retraction of the upper part of the muscle.

There are two methods of treatment, viz., suture of the torn muscle fibres or an attempt to obtain healing without operation.

The non-operative treatment consists of strapping the limb from the balls of the toes to just below the knee. The strapping is kept on for three to four weeks, being renewed when necessary. Massage should be given after the strapping is removed.

Occasionally a tendon may be displaced from its normal site. The tendon most liable to displacement from violence is the peroneus longus at the outer ankle. This condition is important as it gives rise to much disability. It usually results from the patient trying to regain his balance. A sudden forcible movement when the foot is everted, such as occurs in a fall in which the foot suddenly reaches the ground in an everted position, is very apt to dislocate the tendon from its groove.

When the accident occurs there is

a sensation of tearing, accompanied by sudden pain and a certain amount of loss of power in the foot. Very often too, there is a subfascial hemorrhage and considerable swelling, so that, unless the case is seen very early, the exact injury cannot be diagnosed until two or three weeks have elapsed. It is then found that a tendon which ought not to be there rolls under the finger on the outer side of the ankle.

The treatment consists in replacing the tendon in its groove and keeping it there by artificial means until the tear in the sheath has mended. This may be done either by replacing it by manipulation and afterwards fixing the foot in the inverted position, or by means of operation. Without operation it is very difficult to replace the tendon satisfactorily and to maintain it properly. As considerable swelling generally follows the injury, it may readily slip out again and the displacement not recognized until the swelling subsides some weeks later. Hence immediate operation is the best procedure.

When no operation is thought desirable or when the patient will not consent to one, apparatus must be resorted to. The tendon is readily replaced in the early stage by flexing and everting the foot and pressing the tendon into the groove. The foot is then strongly inverted and brought nearly to a right angle. A firm pad is fixed over the groove so as to prevent the tendon from escaping, and an external moulded splint applied so as to fix the ankle joint. The splint should not be taken off for about six weeks, except for passive motion and then the foot and ankle should be strapped for some time. The patient should be cautioned to walk about with the foot inverted.

Fracture of the bones of the foot occur quite often in industrial life.

Fracture of the astragalus alone is of extreme rarity. The fracture results from falls from a height upon the foot. The bone may then fracture or become dislocated. If it fractures, the anterior part of the bone is displaced forward, the fracture being through its neck.

The treatment is difficult and will depend upon the condition of the astragalus as shown by the x-ray. In most cases it would probably be advisable to expose the fractured bone and in the majority of instances it would seem desirable to excise the astragalus completely. The movement of the ankle after removal of the astragalus is remarkably good, whereas if a piece of bone is left in the

joint, a satisfactory result can hardly be expected.

The most common fracture in the foot is that of the os calcis, which may occur from falls from a height upon the heel or from the foot being run over. The result is comminution of the upper part of the os calcis. The posterior portion, to which the heel cord is attached, may be broken off.

Many of these cases are overlooked and are treated as mere sprains. The mistake is of importance as these fractures are liable to leave much stiffness.

When there is an extensive comminuted fracture of the os calcis the heel feels like a bag of bones and it is difficult to bring the parts into good



Bottom view of a good orthopedic shoe. Note anatomically correct shape of the sole with its straight inner border.

position. The best plan is to divide the tendo Achillis and then to hold the heel in position while the patient is under an anesthetic and to apply a plaster of Paris casing so moulded as to bring the heel and the os calcis into proper shape. In these cases any resulting disability will be in connection with the transverse tarsal joint. Special care should be taken to prevent occurrence of a valgus condition.

Fracture of the other tarsal bones are comparatively rare, except as a result of a general smash of the foot. As they are usually compound and associated with extensive injury, they do not call for individual description.

Fractures of the metatarsal bones may be caused by run-over injuries or kicks, or heavy weights falling upon the foot. As a rule there is little displacement in these fractures, the other bones forming splints for the fractured one. All that is necessary is to see that the broken ends are brought into position by suitable manipulation and then to fix the foot in plaster of Paris bandages.

In concluding the writer would emphasize the following points.

- (1) All employees should have their feet examined periodically.
- (2) Foot exercises, proper orthopedic shoes and hosiery should be prescribed as preventive measures.
- (3) The feet should be protected against dampness and cold, by wearing of woolen socks and rubbers. These should be insisted upon for out of door workers. It is an excellent way to prevent frost bite of the toes.
- (4) Injuries of the foot should receive prompt attention. Proper diagnosis and treatment is essential, so as to return the worker to usefulness as soon as possible and in as normal a condition as is possible.
- (5) Proper hygiene of the foot should be practised.
- (6) Patients should not be returned too soon to their occupations, as haste makes for waste, in a majority of these cases. Returning to work before healing has been complete will only tend to aggravate the pathological condition present and in that way prolong invalidism.
- (7) Institution of these simple precautions as regard to the care of the foot in the various industries would tend to keep suffering, loss of time and invalidism at a minimum.

The proposal of a prominent English jurist to give deadly poisons a distinctive color as a safeguard against mistakes is taking definite form, according to the London correspondent of the *Journal of the American Medical Association*. The privy council has asked the general medical council to express its opinion on the proposal that strychnin should contain enough "brilliant green" to make it readily recognizable. It is further proposed to add suitable dyes to arsenical poisons "sheep dip" and "weed killer" so that, if they should be administered for homicidal purposes the dye would be deposited in the body of the victim.

Dutch Labor Legislation*

BY J. G. C. VOLMER, PROFESSOR OF BUSINESS ADMINISTRATION, UNIVERSITY OF DELPH, HOLLAND.

THE regulations in Dutch labor legislation which have to do with the prevention of excessive fatigue, are to be found principally in the regulations based on the Safety Act of 1895 and in those based on the Factory and Workshop Act of 1919.

Safety Act

The regulations on the basis of the Safety Act apply to practically all factories and workshops. They give very detailed regulations for the following items:

- (1) The height of the workrooms and specifications for the number of cubic meters of air which must be available for each workman.
- (2) Lighting (30 Hefner candles at 1 m. distance).
- (3) Fire prevention.
- (4) Prevention of accidents in case of fire.
- (5) Canteens and clothes rooms (cleanliness, ventilation, and humidity of work rooms).
- (6) Water closets.

For all these subjects very detailed regulations, expressed in figures are given, *e.g.*, the height of undetrimental workrooms must be at least three meters; and for each workman seven cubic meters air must be available, etc.

In detrimental workrooms, *e.g.*, in those where the air is vitiated by dust (phosphate milling, bronzing, etc.) this amount is increased to twenty cubic meters.

The inspectors of factories and workshops have power to give detailed orders, on the basis of the Safety Act, for the following items:—

- (1) Promotion of cleanliness.
- (2) Maintenance of good temperature and sufficient ventilation without draught.
- (3) Dust prevention.
- (4) Protection of machinery and electrical apparatus, etc.
- (5) Prevention of poisoning, infection and industrial diseases.

The inspectors of factories have moreover the right to fix distinct limits of the time during which a workman may remain in excessive temperature, noxious gases or dust (cleaning of boilers), etc.

On the basis of these regulations the labor inspectors exercise continu-

ous control. Gradually they have arrived at a certain standard practice.

The Factory and Workshop Act gives a general limitation of the time of labor of eight and one-half hours per day and forty-eight hours per week and gives as a general regulation that no night labor is to be performed between 6 p. m. and 7 a. m.

In the regulations based upon this Act special provisions have been made for the safety and general well being of women and adolescents.

The legal medical examination of young people for all detrimental trades, is of predominant interest. Without a medical approval, persons younger than eighteen years of age are not admitted to the trade. This applies to important branches of industry, such as the printing industry, the diamond cutting and polishing industry, textiles and cigar making, and to all workshops using lead.

Through this measure the basis has been laid for a rational vocational selection on physical criteria, which must proceed a further psychological analysis.

Some Dangerous Trades

PROGRESS in industrial medicine has lagged wherever preventable occupational disease has not become a compensable charge against the industry causing it, and trades dangerous to workmen remain uncontrolled because almost everywhere the facilities are lacking for the detection and observation of industrial disease. Not more than four or five places in the United States afford opportunities for research in industrial diseases, and less than ten hospitals throughout the land have sufficiently complete records for the research student to trace cause and effect in sickness and working environment. A small group of men in Chicago were pioneers in this work. Ohio is alive to the exigencies of the industrial situation. The Massachusetts General Hospital is prosecuting precise studies on these subjects, and Johns Hopkins covers the field; but for the most part in communities, industrial and otherwise, little curiosity is evinced in the subject and no consistent inquiry is made.

Recent progress in industrial medicine was the burden of a lecture on

Further regulations for the detrimental trades are: the providing of sanitary accommodation, *e.g.*, washbasins, soap, nail-brushes, towels, etc.

In principle this Labor Act has already existed for thirty years and has gradually been extended. In the very beginning it was only applied to labor in factories and workshops. With the last revision in 1919 it has been extended to offices, shops, chemist's shops and to people occupied in art and entertaining. For shops, chemist's shops, and dressingrooms of theaters, etc. suitable sitting-accommodation regulations have been given. The number of seats must at least be just as large as the number of women or adolescent people who work together at a certain time. People must be given the opportunity to make use of these seats whenever this is possible with a view to the work to be done.

The Labor Act, moreover, opens the opportunity to prohibit an unfavorable wage system, for adolescents as well as for adults. Up till now, however, this regulation only applied to children under fifteen years of age. They are not allowed to work in any piece-rate system, unless the Inspector of Labor has given special permission. As a rule, however, this special permission is not given.

dangerous trades given before the Chicago Social Workers' Club by Dr. Alice Hamilton on April 2. There are no old truths on the subject, said Dr. Hamilton. The newer studies in this field, and what has been found out in the last five years represent the sum total of practical achievement. Industrial medicine was fortunate that the first significant industrial hygiene inquiry in this country was on phosphorus poisoning, a disease whose ghastly ravages were spectacular, easily identified with the trade process causing it, and to be eradicated by so simple measures of workplace control. The law that led to its eradication was unconstitutional, but, fortunately, we did not know it. The company which possessed the formula of the innocuous process utilizing sesquisulphid waived its exclusive rights, and the situation was controlled. Manganese poisoning is a newer problem.

A much more complicated situation exists in the study of fatigue. Much labor has been expended in the perfectly futile search for a simple and satisfactory test for the detection of

*Paper delivered before the International Committee for the Elimination of Unnecessary Fatigue of the Society of Industrial Engineers.

dangerous degrees of industrial fatigue. British researches have covered a period of three years, and American studies two years, with the result that the most that can be said is that in heavy work cutting down hours appears to increase the possible output. This does not apply in lighter trades, but recent studies go to show that little real work is accomplished in the last hour of a twelve-hour day. Reynold Spaeth has issued the dictum that the subjective feelings of the workmen are still the best indication of fatigue. Dr. Hamilton ventured that not fatigue toxins but delayed responses are the danger signals, and that not until our observations carry the same group over long periods, and some basis is gained for detecting long-range effects of the strain of overwork can we hope to know what undue stress does to the health, longevity, and continued effectiveness of the worker.

Notions that all dusts are deadly have undergone recent change on the demonstration that some dusts are always dangerous, some are apparently always harmless, and certain trades always show a high tuberculosis rate independent of dust. It is demonstrable that the dusts proved to be dangerous all have the common quality of containing free silica, and such trades as sand blasting, glazing, enameling, glass-making by fusing, and natural emery polishing are the ones wherein dust constitutes the hygienic problem. The same test explains why the mining of certain ores is attended with the greater relative danger. In Arizona, where the copper is mingled with porphyry, with silicates, respiratory diseases are highly prevalent, while in Butte, Mont., the U. S. Public Health Service found tuberculosis in 432 of 1,018 miners examined. In the Granite industry of Vermont, Baldwin found the tuberculosis rate was 90.6 per 100,000, and Lanza found 15 per cent of all zinc miners in Joplin affected. Comparisons made between wet and dry grinding processes showed wet grinding harder of air control than the dry process, and the incidence of respiratory affections as great.

Studies of the dust itself are interesting. It is only the particles not more than two or three microns in length that find lodgement in the lungs and cause the trouble. Reliance upon respirators to protect against the danger serve only to ease the employers' conscience. It is the chemical, not the physical characteristics that count. The phagocytes in the blood are not able to deal with particles of

silicate. Once such material is ingested, the phagocyte does not find its way again into the blood and carry off the particle, but stays right there, to become the focus of future infection. Silica, therefore, is dangerous while coal dust is not.

Many kinds of dusts remain to be studied. It is not known, for instance what is the remote effect of lint from cotton, jute, or silk. Fur cutters and workers in felt hats seem to be no more prone to lung trouble than the general population. The mortality of textile towns, however, is frightful. This may be similar to the printer's trades and to shoe manufacturers, where the difference between the tuberculosis rate in workers and non-workers is related less to atmospheric conditions *per se* than to low wages, immaturity of workers, speeding up, and heat and humidity in work places.

The danger to workers from such poisons as lead is directly related to the process and the manner of handling. The safe lead industries are precisely the ones which are taking precautions. Lead is always a poison. The roasting of oxides, the fumes that rise from molten lead, are particularly dangerous. Brass dust is dangerous because of its lead content.

Another danger, increasingly various and more and more prevalent arises from the solvents in the rubber industry, in shellac and varnish, and in dry cleaning the solvents of fats. Denatured alcohol is not without its danger. Blindness has resulted from as low as 4 per cent. The most important of the newer poisons is benzol, which causes the blood to deteriorate and the blood-renewing bone marrow to cease functioning. Not only the red blood suffers, but the white corpuscles disintegrate, resulting in the aplastic anemia which, especially in young girls, is so often fatal. The chlorin derivatives are another ever present danger and new solvents are appearing almost constantly which call for observation.

With wider knowledge of these subjects more attention and better protection will be given to the dangerous trades in which they are involved. Industries which now pay meticulous attention to infections in cuts will then take the simple precautions necessary to obviate occupational disease. The most promising solution for the extension of safeguards of this kind is in the way of compensation laws which bring occupational disease under the same system which now protects the workmen against accident. That will mean the development everywhere of the system so effectual in

Pennsylvania of consultation by experts for the detection of dangerous trades. A body of impartial figures will be developed, and the scientific curiosity of trained men will be directed toward the solution of the difficulty.

California Industrial Accident Commission Report

The outstanding fact in the annual report of the Industrial Accident Commission of the State of California, as submitted to Governor William D. Stephens, is that there was a decrease of 42 industrial deaths in 1921 as compared to 1920, the total respectively being 550 and 592. The statistics further show a reduction of 38.39 per cent in the industrial death rate of California for the calendar years 1914 to 1921, inclusive.

There were 1,643 permanent injuries reported in 1921 to the commission, as compared to 1929 in 1920. There was also a reduction in temporary injuries, as shown by the totals of 123,336 in 1921 and 131,587 in 1920. In 1921 temporary injuries to the total of 60,685 did not cause loss of time from work.

Out of the 550 deaths last year there were 453 compensable, and the remaining ninety-seven did not come under the commission's jurisdiction. The record shows that 114 were caused by varied classifications; ninety-eight by railroad, vessel and stevedoring operations; ninety by construction; seventy-eight by manufacturing; seventy-one by public utilities; fifty-three by mining, quarrying and oil producing; forty-six by agriculture. There were five women killed while at work in 1921; the similar total in 1920 was three.

Total dependents to the number of 701 resulted from 302 fatalities, 117 partial dependents were left in fifty-nine cases, in 159 cases there were no dependents, and in 30 cases the degree of dependency was unknown. The average age of the widows was 38.7 years. The dependent children averaged 8.8 years.

Life pensions were awarded in nine cases of serious and permanent injuries. There were sixteen such injuries in 1920. Injuries that caused time loss of over seven days numbered 32,286. The statistical department's report show that in 1921 there were 237 permanent eye injuries, twenty-seven arms amputated, 658 fingers lost, twenty three legs or feet lost, and sixty toe amputations.

Occupational diseases number 576 in 1921, as compared with 596 in 1920.

Dust Removal Equipment

THERE is very little doubt that the number of deaths each year which are due to lack of protection for operators of polishing and grinding wheels runs into the thousands; and permanent disabilities such as lost eyes, weakened lungs, etc., add further to the damage toll of unguarded wheels.

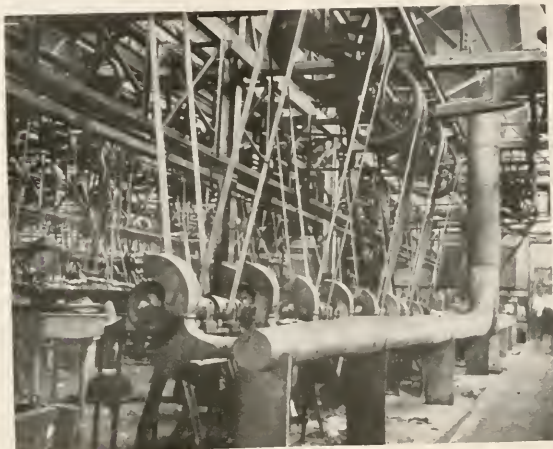
Studebaker Corporation show the equipment used in polishing and grinding departments. Information from C. A. Lippincott, manager of the cooperative department, states that in the machine shop polishing department this equipment includes a blower operated by a thirty horsepower motor, which takes the dust from ten

horizontal section of the "T" is tapering in form, having a diameter of nine and one-half inches at the small end and a diameter of fifteen inches at the approach to the vertical section. This vertical section, which leads to the fan overhead, is twenty-four inches in diameter and approximately fourteen feet in length. The motor and blower are located just under the roof of the building. A speed of 870 R.P.M. is attained by the motor.

The employees are appreciative of this equipment. One man who has had twenty years experience covering work in more than eighty shops, says that this protective equipment is about as good as he has ever seen.

The polishing wheel guards are adjustable, so that as the wheels wear down the guard may be adjusted in accordance with the reduced size, in order to give complete protection at all times.

In the grinding room of the tool department adjustable dust collectors are used, with flexible connections so that the collectors may be adjusted to various types of work. A much smaller motor is used to operate the blower as there is not so much dust to be carried off. The sparks, emery dust, etc., are carried to the roof, as in the



Polishing lathes at the Studebaker Corporation's South Bend Plants. Picture shows adjustable guards and "T" type blower pipe leading to fan overhead.

The danger in connection with grinding comes from the flying sparks and dust, the latter especially when the wheel is being "dressed." In the polishing operations the dust is the factor which causes the trouble. Flying sparks from grinding wheels are a frequent cause of serious eye injuries. These can be partially prevented by the use of goggles, though it is indeed difficult to get men to wear goggles continuously, and the best goggles are bound to admit some particles of dust, in spite of careful design and fitting. Furthermore, the men are urged to "get production" and they cannot work quite as fast with goggles as they can without, and there you are.

So, for the sake of more continuous production and for the sake of the reduction in labor turnover which comes as a result of better working conditions, if not for the sake of the man himself, it is highly important that the grinding and polishing operations in industrial plants be made safe for the worker.

The accompanying photographs, taken at the South Bend works of The



View in grinding room of Tool Department, The Studebaker Corporation, South Bend Plant. Photograph shows dust collectors with adjustable connections.

double head polishing lathes. The dust conveyor consists of horizontal pipes connecting the wheels with the blower pipe which is in the form of a "T" as shown in the illustration. The

case of the polishing department blower. The details of the plan have been worked out by competent ventilation engineers and are highly effectual in handling the hazard of dust.

INSTITUTIONAL HEALTH

The Health Problems of Schools and Colleges, Hotels, Summer Camps, Children's Homes and Homes for Dependents

Columbus Opportunity School

By BERTHA W. EISENBEIS, PRINCIPAL, OPPORTUNITY SCHOOL, COLUMBUS, OHIO.

THE Opportunity School at Columbus, Ohio, grew out of a disciplinary school for boys. Boys were sent to this "Special School" charged with all the sins of the decalogue and probably guilty of them, too. At first I was certain that original sin was the enemy I was fighting and with all the optimism of youth I fought him tooth and toe-nail. By the close of ten years' experience, of "wrestling" with the devil, I found I was tilting with wind-mills. In my blind way I began to feel that there was a screw loose somewhere in the make-up of these boys transferred to my school.

About this time the department of educational psychology at the Ohio State University became active in administering mental tests. All were fish for their nets and so we were examined. The results were very enlightening. The burden of blame was removed and a new deeper note of sympathy born of understanding took its place.

First of all, ideas of concrete results were pushed very far into the background. Naturally this brought the individual child forward as nothing else would have done. "Happiness First" became our motto. The establishment of happiness prepares the ground for the growth of self respect—not egotism or self love but good wholesome self respect resting upon a foundation of truth toward personal achievement and conduct. To build thus the child must be able to achieve something. He must accomplish some task with success so that in the community of his fellows he can point with pride at some result of his efforts. What this task is—is of small matter. Polishing a stove, scrubbing a floor, washing dishes, setting a table, cleaning a window, sewing, caning

a chair, raising a garden, painting a picture, extracting a square root—all are of equal merit if well performed. How much the health of the world's soul depends upon menial tasks well done!

"Nothing is good or great alone
All are needed by each one."

This we saw clearly was our program. Of course to carry out this program it is necessary to study the individual ability of the child. And

this is our utmost endeavor. Not that we hope to make carpenters, brick masons, cement layers, etc. of these children, but to find that contact to which each individually will respond by growth. Growth not necessarily toward intellectual attainment but growth toward self respecting American citizenship.

Matters have progressed in Columbus since those Ohio State pioneers journeyed to town and helped us with our first inquiry into the mental realms of our children; and today we have at our disposal not only the services of the Ohio State University but those of the Ohio Bureau of Juvenile Research also. These facilities give us a fine free start.

When a child comes to Opportunity School he enters an academic class where he remains for two weeks before he is placed in any shop. This is for the purpose of making friends with the child so that we may have some idea of his inclinations. By slow degrees he is introduced to the life of the school and shyness and embarrassment are overcome. The other children become used to him and he is not subjected to the cruel comments of frank childhood when he makes his first essay at new tasks. This initial period over, his real work begins.

As to the balance between academic work and hand work, the theory is one of fifty-fifty. In force it becomes a sliding scale. One child may carry a program of three-fourths academic and one-fourth hand work—the maximum academic program in the school; and the next entrant may be fitted out with three-fourths hand work and one-fourth academic—the maximum hand work program. There are cases where it would be wise to drop even this minimum academic course but many reasons deter us. Parental ob-



These girls make their own dresses and hats. Personal pride and the stimulus of the "my" feeling is so engendered.



Interested occupation is the effective disciplinary measure in the Opportunity School.

jection—the value the public places on academic attainment are two important reasons for retaining this small amount.

Where a child will voice no preference it falls to the school to begin a course of trying out. I should like to say right here that there is no such thing as too great an effort for this inquiry. Its result is the most crucial test in the education of the child. One cannot be too cocksure of their own judgment in giving this test. I am reminded of a huge brawny black boy that came to me, and looking at him I immediately began to yearn for miles of cement walk to lay or for innumerable unconquered coal piles. You will smile when I inform you that I later found his contact to be embroidery. A needle and not a pick was his medium of expression.

Toward this inquiry the Opportunity School offers the following lines of work. For boys—bench work, cement work, chair caning, brick laying, clay modeling, elementary metal work, cooking, sewing, janitor service, gardening, refinishing, repair of furniture, shoe cobbling, barbering, or any line of work that the child himself might suggest, provided of course it is feasible.

To our girls is open the same work with the addition of dress making, millinery, costume designing, interior decorating. The nurse gives a simple course in care of babies and in home nursing and personal hygiene.

Both boys and girls flood the classes in folk dancing and gymnastics.

Our orchestra of forty pieces and a monthly newspaper are among our achievements. Our toys are in great demand by Columbus merchants. It is our good fortune to always have one or two doll houses to build and

furnish at Christmas time.

Our girls cook and serve a lunch every day for teachers and pupils, handling as many as fifty lunches per day. Lunch is served to the children for five cents. We give nothing. Lunch, service in the cobbling shop, the barber shop, clothes etc., all must be paid for. That no one need be held from what he needs we have innumerable small tasks about the school that we apportion as the need arises. By this we hope to establish clearly the relation between supplies and labor. Do you need a pair of shoes or a hair cut? Well, hunt a job!

A washing and an ironing is done every day on the grounds. Girls usually do this but under stress of other work the boys help voluntarily. I often wonder what many mothers would think were they to see how popular a pastime dish washing is among the boys.

Service in our dining room has

proved a source of income for several girls during the last two vacations.

Two boys last summer established a furniture repair shop and made good. Our girls are easily placed as maids and we endeavor to show them the value of this work over factory work.

"He is happy who enjoys his work" is a sentiment that we drive home hard. Work—work—work—and then more work—happy blessed work is the burden of our song and it is a tune that we have no difficulty in getting our boys and girls to swell.

Our fear is not that we will not have a school but that that school will not touch life. So we seize every opportunity to really do something human. Hence when the Washington's pride of fourteen summers succumbed to tuberculosis and money was short for the funeral, our girls laid aside their regular work and fashioned a shroud. When the Mareno family increased—what better chance to show our knowledge of a simple layette! When the Pegdon family was burned out there was the opening for our furniture repairers to come to the front.

The most precious things of life lie at our hand for the reaching—not riches, but work well done gives rest and peace.

The best school, in the best city, in the best country in the world. Opportunity School, Columbus, O.

We Believe in the Constitution of the United States.

The principal effort of the division of research extension of the National Research Council for the coming year is announced to be the raising of funds in sufficient amount to permit intensive work on the tables of physical and chemical constants which is being edited by the Council.



The boys separated for disciplinary control are not only trained for work, but find restoration through pure fun.

The Chronic Disabled Patient

Extent of Problem and Cost of Their Institutional Care in New York City

BY HAVEN EMERSON, M.D., CHAIRMAN, EXECUTIVE COMMITTEE, ASSOCIATION FOR THE PREVENTION AND RELIEF OF HEART DISEASE, NEW YORK CITY, N. Y.

THROUGH the generosity of the Sturgis Research Fund, a study of the problem of the chronic cardiac patient has been undertaken by the New York Association for the Prevention and Relief of Heart Disease. A knowledge of existing facilities, and the extent to which they are used, or are inadequate is a necessary preliminary to the preparation of a policy.

What percentage of the service of general hospitals is devoted to heart disease patients? What is the annual cost of the facilities now offered? How far short of recognized needs do the existing medical and social services fall?

To answer these specific questions facts were obtained from ten large general hospitals, from all the dispensaries where special heart classes are maintained, and from those convalescent homes which accept patients recovering from heart diseases. In each instance the institution studied was visited, and the facts here reported were obtained at first hand from the records by a representative of the executive office of the Association.

Hospital Care

The records of ten hospitals were studied: (1) Bellevue Hospital; (2) four hospitals of the Department

of Public Welfare—Kings County, Metropolitan, City, and Central Neurological; and (3) five of the large privately supported hospitals—New York, Presbyterian, St. Luke's, Mt. Sinai, and Montefiore Hospital and Home.

General Hospital Patients

The facts collected for the twelve months of 1920 or 1921 (see Table I) may be summarized as follows: Of the total number (98,838) of patients

admitted to these ten hospitals in twelve months, 4,522, or 4.53 per cent, were recorded as suffering from one or more of the following cardiovascular conditions, either as chief cause of disability or as an important complication (Table II): chronic valvular heart disease, myocarditis, aneurysm of aorta, endocarditis, pericarditis, angina pectoris, cardiac hypertrophy, and cardiac arrhythmia. The ratio of cardiacs to all patients admitted varied from slightly less

TABLE II.—HEART PATIENTS DISTRIBUTED BY HOSPITALS AND DIAGNOSIS.

Hospitals	Primary conditions										Complications									
	Total heart patients studied	Chronic Valvular Heart Disease	Myocarditis	Aneurysm	Endocarditis	Pericarditis	Angina Pectoris	Cardiac Hypertrophy	Cardiac Arrhythmia	Hypertension	Arterio Sclerosis	Acute Rheumatic Fever	Chronic Rheumatic Arthritis	Syphilis	Hypertrophied Tonsils	Hyperthyroidism (Exophthalmic goiter)	Chorea	Nephritis		
Bellevue (1921)	792	524	154	38	5	1	55	2	2	2	17	16	4	11	15	3	2	48		
Kings County (1920)	1,029	275	690	6	49	3	4	2		5	293	7	32	50	14	3	2	263		
Metropolitan (1921)	410	166	243	5	51	3	2				190	3	16	19	7	1	1	83		
City Hosp. (1921)	310	165	100	3	22	5		4	2	6	34	20	12	2	10	1	21			
Neurological (1921)	595	27	561	6					1		285	6	1	9				45		
New York (1921)	159	95	36		11	5	2			3	12	2	2	3	5			8		
Presbyterian (1920 and 1921)	620	342	101		24	18	13	109	53	14	116	73	13	93	54	15	10	79		
St. Luke's (1920)	358	118	95	13	117	3	6	14	1	21	28	9	7	33	7	4	4	49		
Mt. Sinai (1920)	309	133	46	5	85	4				1	13	20	1	12	6	2	1	13		
Totals	4,612	1,645	1,956	38	358	46	28	184	61	165	990	156	101	272	122	26	22	509		

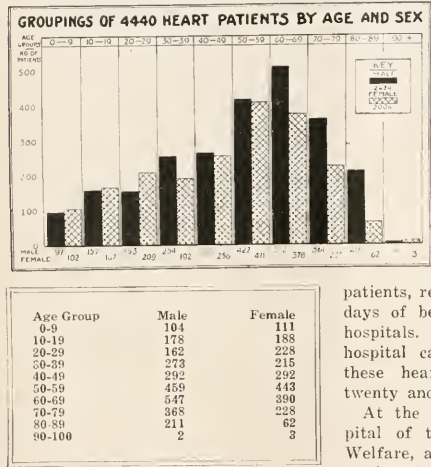
TABLE I.—HEART PATIENTS IN HOSPITALS. SEX AND AGE GROUPS. RESULT OF CARE. LENGTH AND COST OF HOSPITAL

Hospitals	Total number of patients admitted	Total number of heart patients	Percent of heart patients	Sex	Result of Care										Length and Cost of Hospital										
					0-9 years	10-19 years	20-29 years	30-39 years	40-49 years	50-59 years	60-69 years	70-79 years	80-89 years	90 or over	Improved	Unimproved	Died	Went in Hosp. but not in heart pt. ward	Care in hosp. per day, all pts.	Average stay per day, heart pt.	Total number of heart patients	Percent of all heart pts. sent given to heart pt. ward	Total cost to hospital for heart patients	Average cost per heart patient	
Bellevue (1921)	4,186	192	4.6	895	39	54	107	170	105	137	139	45	5		485	105	200	130	38	20.3	59,812	2.94	\$49,001.01	\$58.81	
Kings County (1920)	13,276	1035	7.8	184	49	1	22	26	55	55	126	222	259	187	381	58	560	253	27	25	90	384.25	6.2	\$55,414.14	73.44
Metropolitan (1921)	7,645	410	5.3	21	193	13	13	29	52	57	100	56	1	16	135	59	156	13,553	110	39	90	38,695	4	\$50,254.30	123.69
City Hosp. (1921)	4,800	310	6.2	172	129	8	14	18	15	3	55	77	33	6	203	23	75	11,021	118	35	94	22,130	4	\$25,094.48	94.03
Neurological (1921)	1,199	955	79.8	272	723	1	7	8	33	203	141	55	1		237	35	322	81,555	1.01	40	26,220	31.8	\$86,740.30	141.00	
New York (1920)	5,594	195	3.5	9	52	12	29	13	19	37	33	24	1		113	10	38	3,207	40	70	2	121,251	2	\$57,130.30	97.94
Presbyterian (1921)	4,509	342	7.6	156	175	70	43	37	44	50	70	50	5	3	195	47	98	15,001	60	70.7	81,269	12	\$31,321.03	145.12	
St. Luke's (1920)	8,025	358	4.5	185	159	33	43	15	44	55	81	55	26	4	285	31	49	18,995	66	31	114,597	9.9	\$51,511.00	144.46	
Mt. Sinai (1920)	9,150	309	3.4	169	140	17	27	40	51	45	60	25	8		216	34	99	33,56	43	37	5	1,484.1	6.4	\$55,741.40	222.50
Montefiore (1920)	2,040	188	9.2	100	88	15	25	38	25	24	30	17	1		126	62		40,720	2.59	253.8	24,233	19.1	\$23,594.80	657.14	
Total	98,838	4,522	4.53	1,588	1,718	13	141	455	522	842	853	355	27	9	2,298	565	1,000	36,047	1.67	52.2	29,252	73.1	\$46,012,608.85	257.27	

than 2 per cent in the case of Bellevue Hospital to 9.2 per cent at Montefiore Hospital and Home, and 49.6 per cent at the Central Neurological Hospital, the ratio of the latter two hospitals being affected by the fact that they accept chronic and apparently permanently disabled cardiac patients.

Sex and Age of Patients

Of these 4,522 cardiac patients, 2,468, or 54.58 per cent were males, and 2,054, or 45.42 per cent, were females. The age and sex distribution is graphically portrayed in Chart I.



Occupations of Patients

In spite of the lack of sufficiently exact description of the details of occupations of these patients, Table III is of interest to those concerned with the occupational guidance and vocational training of persons in whom a cardiac lesion has already been noted, though not yet disabling to the point of occupational handicap. The possible occupational element in causation of disability from heart disease can, by no means, be estimated from these tables, as the number of people employed, and the length of employment in the respective trades and occupations listed are not known for the community as a whole. Of the 3,027 patients for whom the records were sufficiently complete to quote, occupational data are as follows: housework, 928; school attendants, 259; labor (not specified as to variety, length or condition of work), 251; clerks, 77; cooks, 58; porters, 39; carpenters, 36; seamstresses, 20; seamen, 20; laundresses, 16; salesmen, 16; firemen, 15; pressers, 14; hospital helpers, 12; chauffeurs, 11; operators,

9; painters, 33; tailors, 32; watchmen, 32; waiters, 22; farmers, 8; and cigar makers, 8.

Results of Hospital Care

Of the 4,502 cases in which the records were complete, the condition on termination of hospital care in 2,298, or 51.04 per cent, was reported as improved, and in 565, or 12.55 per cent, unimproved; 1,639 or 36.4 per cent cases terminated in death.

Of the total of days hospital care provided for all patients at these 10 hospitals during the 12 months of the study, 2,525,233, the days of care for cardiac patients were 236,047, or 9.35% of all patient days given at these hospitals in the year of record.

The common knowledge that cardiacs are apt to require long periods of hospital bed care is emphasized by the fact that cardiacs, though representing only 4.58 per cent of all patients, required 9.35 per cent of all days of bed care provided by these hospitals. The average duration of hospital care on each admission of these heart patients was between twenty and forty days.

At the Central Neurological Hospital of the Department of Public Welfare, and at the Montefiore Hospital and Home, where alone among the ten hospitals chronic disabled cardiac patients were regularly accepted, the average stay was of course much larger, the average being, for the former 140.6 days, and for the latter 253.8 days per patient.

Hospital	Average days of care
Bellevue	20.2
Kings County	25.5
Metropolitan	39.9
City	36.5
Central Neurological	140.6

Mt. Sinai	37.5
Presbyterian	20.7
St. Luke's	31
New York	20.2
Montefiore	253.8

Cost of Care

Accepting the estimate of cost of each day of hospital care of all medical and surgical patients as given by each hospital (rates in 1920) Mount Sinai, \$5.40; New York, \$4.90; St. Luke's, \$4.66; Kings County, \$2.87; and Montefiore, \$2.59. Rates based upon 1921 data were as follows: Presbyterian, \$6.03; Bellevue, \$3.39; Metropolitan, \$3.10; City Hospital, \$2.68; and Central Neurological, \$1.60. The total cost to these hospitals of the bed care of the 4,522 heart patients admitted for the period covered was \$607,280.88. The average cost of each heart patient's stay varied from \$68.81 at Bellevue, where the length of permitted stay is necessarily brief, to \$657.34 at Montefiore, and \$149.00 at the Central Neurological, where the period of care commonly extends over many months.

The institutions of various kinds in and near New York City which accept patients convalescent from acute cardiac disease or from some form of breakdown caused primarily by disease of the heart, number eleven. With the exception of St. John's Guild, which is open three months, they are open throughout the year and provide accommodation for 312 patients (Table IV).

The beds assigned to convalescent heart patients vary from two at the James A. Moore Memorial Home, to eighty at the Burke Foundation. The total beds calculated on twelve months service in these institutions for all kinds of convalescent patients amount to 910. Thus the percent of convalescent beds in these particular homes, available for heart patients, is 34.2 per cent.

It is estimated that there are avail-

TABLE III.—HEART PATIENTS. CLASSIFIED BY OCCUPATIONS.

Hospital	Patients reported as to occupation (Total patients admitted)	Housework	Laborer	Presser	Cook	School	Clark	Tailor	Carpenter	Waiter	Porter	Fireman	Seamstress	Chauffeur	Salesman	Painter	Farmer	Seaman	Laundress	Cigar Maker	Hospital Helper
Bellevue	454 (792)	172	70	11	79	24	8	9	12	14	13	5	9	10	9	1	5	2	2		
Metropolitan	121 (416)	45	8	14	6	8	3														
City Hosp.	86 (301)	40	4	2	2	2	5	6	7	1											
Neurological	167 (595)	84	14																		
Presbyterian	195 (620)	9	7	20	100	23	2	11	4	2	3	4	2	5	7	2					
Mt. Sinai	182 (309)	69	3	7	1	64	12	12													
Total	1907 (3027)	928	251	14	58	259	77	32	36	22	39	15	20	11	32	16	33	8	20	15	8

able for convalescent care of all classes of patients in and near New York City:

Beds	Beds throughout the year
2,008 (12 months)	2,008
177 (4 months winter) equivalent of	59
570 (4 months summer) equivalent of	190
Total	2,257

The heart patients have available only 312 beds or 13.8 per cent of all convalescent facilities.

Patients Accepted

All homes do not accept patients in all stages of heart disease even though the patients may be as a matter of fact convalescent from a more severe grade of disability.

The clinical basis for admission of patients to the various convalescent

1. Clinical classification of patients accepted is as follows:

Class I.—Patients with organic heart disease who are able to carry on their habitual physical activity.

Class II.—Patients with organic heart disease who are able to carry on diminished physical activity: (a) Slightly decreased; (b) Greatly decreased.

Class III.—Patients with organic heart disease who are unable to carry on any physical activity.

Class IV.—Patients with possible heart disease. Patients who have abnormal physical signs in the heart, but in whom the general picture, or the character of the physical signs indicate that they do not originate from cardiac disease.

Class V.—Patients with potential heart disease. Patients who do not have any suggestion of cardiac disease, but who are suffering from an infectious condition which may be accompanied by such disease, e. g., rheumatic fever, tonsillitis, chorea, syphilis, etc.

homes varies somewhat, but the classification of heart patients established by the New York Association of Cardiac Clinics¹ is used very generally, according to which the patients usually acceptable are those falling into Class I, II, IV, and V.

Admission to the Mineola Home is made through the central office of the Association for the Prevention and Relief of Heart Disease. It is hoped in the near future that a central office will serve as a clearing house where admissions to all convalescent homes taking cardiacs can be given and where the institutions may accept the classification and opinion, as to need of convalescent care, that is given in each case by a physician in attendance at one of the various heart clinics. Of the 312 beds available, 134 are for boys² and girls, the majority being for girls; 62 are for boys only; 76 for girls only; and 40 are for men and women. Five of the homes accept colored patients occasionally.

Duration of Stay

The duration of stay is not specified except in one institution, where a limit of three weeks is usually observed. In general the patients are kept as long as the character of care provided appears to be benefiting them. The average duration of stay

2. Excepting the thirty-six beds at Mineola and the six beds at Reed Farm for boys up to sixteen years of age, the provision of beds for boys is limited to those under the age of ten.

of patients in 1921 varied from twenty-one days to eight months. Omitting the maximum of eight months the average stay was about forty days.

The total days of care provided for cardiac convalescents in these homes in 1921 was 89,754. This represents 28.6 per cent of days care given all patients in these institutions, and 14.9 per cent of the days of convalescent care given in all the institutions for convalescent care in and near New York City.

Cost of Convalescent Care

The cost of each day's care of patients in these convalescent homes in 1921 varied from \$1.27 to two dollars. The total cost of care of heart patients in these homes in 1921 amounted to \$156,591.64, and the average cost for each patient's stay in a convalescent home was the sum of \$100.93.

Special Heart Clinics

Since the number of clinic sessions held each week, of hours of each session, and of physicians in attendance, vary widely, the most convenient and accurate way to report upon dispensary services as to give the number of physician-clinic-hours per week provided in any special field. This figure can then be used as a just basis of comparison of services among various communities, as a ratio of physician-hours of such clinic service per 100,000 of the population.

TABLE IV.—CONVALESCENT HOMES. CAPACITIES, LENGTH OF PATIENTS' STAY, COST OF SERVICES.

Convalescent Homes	Beds capacity (Total capacity all patients)	Class of patients accepted	Sex of patients	Age of patients	Color of patients	Limit of stay	Average length of stay	Total days of care of heart patients	Average cost per patient	Average cost per patient stay	Total cost of heart patients
Bureau Foundation	20 (Total capacity 300 beds)	I, II, A&B, IV & V	Girls	10 yrs. to 15 yrs.	White	in general, as long as patient in benefit and needs this care	24 1/2 days	21,328	\$1.75	\$37.50	\$38,374.00
Carpenter Cottages for Convalescent Children	10 (Total capacity 60 beds)	Well compensated if from outside hospital	Girls	to 16	White		30 days	2,700	1.40	5.00	4,250.00
Mary Einn Home for Convalescent Children, Inc.	43 (Total capacity 43 beds)	See notes from directory	Boys	6-10	White		8 mos	15,193	1.70	42.40	26,218.63
Martine Farm	24 (Total capacity 24 beds)	I, II, IV, & V.	Boys	6-10	White		70 days	8,120	1.20	125.00	1,015.00
Margaret and Sarah Switzer Institute and Home	8 (Total capacity 17 beds)	Well compensated cases	Girls	12 yrs. & over	White		21 days	903	1.55	32.55	1,359.55
Mineola Home for Cardiac Children	56 (Total capacity 56 beds)	I, II, III, & V, if in need of convalescence	Boys	6-15	White		46 1/2 days	17,540	1.51	84.71	31,928.40
Jesse A. Moore Memorial Home	2 (Total capacity 10 beds)	Well compensated cases	Girls	12 yrs. & over	White		2 weeks	14	2.00	14.00	26.00
Palham Home for Children	30 (Total capacity 30 beds)	I, II, A&B, IV, & V.	Girls	4-16	White		5 1/2 days	7,958	1.27	58.58	10,229.36
Reed Farm	6 (Total capacity 6 beds)	I, II, IV, & V.	Boys	6-16	White		78 days	2,184	1.80	140.40	3,911.20
St. John's Guild	66 (3 mo. or 17 per yr (256 beds))	I, II, A&B, IV, & V.	Boys	to 12	White		21 days	4,099	2.00	42.00	8,190.00
Convalescent Children's Home	30 (Total capacity 200 beds)	Chorea - no cardiac condition	Boys	5-10	White		53 days	7,737	1.60	95.40	13,926.60
Callatin Cottage	6 (Total capacity 75 beds)	Chorea - no cardiac condition	Boys	5-12	White		49 days	1,272	1.50	88.20	2,259.60
Totals	312 (Total bed capacity all patients 1,000 equivalent of 910 beds for 12 mos.)							89,754	1.74	100.93	\$156,591.64

*Exact cost equivalent - cost estimated at \$1.60

There are now operating in New York City 43 special dispensary heart classes for children or adults, or for both, holding 56 sessions each week, at 24 hospitals or other clinical institutions. (Table V.) There are one hundred and ten physicians in attendance at these sessions giving a total of 301 hours of heart clinic service a week for each 100,000 of the population. The expressed opinion of those working in this field in New York City is that the clinic facilities and the attendance of doctors and nurses devoted to the supervision of ambulatory heart patients should be doubled if the obvious need for this service is to be fully met.

Cost of Service

There are the equivalent of 23 4/15 nurses or paid social service workers in attendance at these clinics, maintaining more or less home and personal contact with the patients, and serving whole time in that special field. From month to month during 1922, an average of 5,900 active patients have attended these clinics, and a total of 35,166 individual patient visits were made to these special heart clinics in the year 1922.

It is estimated that it costs fifteen dollars a year to provide reasonably adequate dispensary and social service follow-up care and supervision of an ambulatory heart patient throughout a year, if the medical services are provided free. On the basis of the 5,900 patients constantly in active attendance at the clinics the estimated cost of this service for heart patients if it had been complete in every respect would have been not less than \$88,500. Considering that the cost of dispensary care of heart patients was approximately the same as that of other patients attending the medical and surgical dispensaries³ in New York (\$0.67), and that in 1922 there were made 35,166 visits to the special heart clinics, we arrived at a cost of \$23,561.22 for this

dispensary service for heart patients in the year 1922.

In all probability the estimate of fifteen dollars a year per heart patient represents more nearly the true cost of care where the home follow up and social service is adequate than does a cost for heart patient care based upon the cost per patient visit for the general run of dispensary patients.

Estimated Cost of Care

The total annual cost of present hospital, convalescent home and dispensary care of patients with heart disease in the institutions studied is approximately: \$607,280.88, for hospital bed care, \$159,704.64 for convalescent home care, and \$23,561.22 for dispensary care at special heart classes. This estimate, which obviously fails to express the entire cost of this group of disabilities, deals only with that relatively small number of heart patients who reach hospitals and dispensaries. There is no sufficient basis of record to estimate the number and probable cost of care of heart patients in their own homes attended

schools, industry, the army, and in life insurance examinations (1) that approximately 2 per cent of people of both sexes and all ages are afflicted with heart disease of sufficient severity to require medical supervision; (2) that not less than 4.58 per cent of all admissions to general hospitals are suffering from heart disease of a seriously disabling degree; (3) that at least 9.35 per cent of all days of bed care provided in general hospitals are required for these serious cases of heart disease; (4) that not less than 5 hours of physician-clinic service per week per 100,000 of population, and probably at least ten such hours of service are needed to provide for care of ambulatory patients; (5) that at least one nurse or social service worker on full time is required for each. 100 patients attending special heart clinics and (6) that not less than 6, and probably at least twelve beds are needed for convalescent care of heart patients per 100,000 of population, and that the duration of such convalescent care will be at least 3 weeks in each case.

Since New York City has 31,618 general medical and surgical hospital beds, from which number we must deduct 3,134 beds used exclusively for eye, ear, nose and throat, skin, cancer and contagious diseases or 28,475 general medical and surgical hospital beds—and these are 75 per cent filled throughout the year—or there are available 21,356 beds, 365 days in the year, or 7,794,940 days. Of these 9.35 will be devoted to care of heart patients or 728,827 days. On the basis of the experience of ten large general hospitals with an average cost of \$3.67 per day per patient we find the probable total cost of hospital care of heart patients in New York City as \$2,711,236.44. There should be added the cost of at least twice as much convalescent home care (\$282,314.88) as is now available, and for lack of which there is unnecessary disability and early death. To this should be added the cost of special heart clinic services which do not at present more than half meet the needs—especially for follow-up of such patients—or \$297,300; and, further, the cost of services of bedside nursing of heart patients by the visiting nurse associations of the city. The service as rendered by the Henry Street Settlement and the Visiting Nurse Association of Brooklyn, amounted to \$5,169.40 in 1922. The whole cost so arrived at constitutes a total of \$3,290,000.72, which represents but the minimum basic cost of those sick from heart disease, and does not take

TABLE V.—SPECIAL HEART CLASSES IN DISPENSARIES.

Hospital and other Dispensaries	No. of Clinic Sessions per week	No. of doctors on duty	Hours per wk. of supervision	Social service (or part time)	No. of patients on active list	Total visits of patients in last 1922
Bellvue Hosp. (Manhattan)	3	7 ¹	24	2	815	3689
Beth Israel (Manhattan)	1	4	5	2 ²	295	1450
Brooklyn Hosp. (Brooklyn)	2	5	15	1-1/3	161	771
Cornell Disp. (Manhattan)	1	2	5 ³			
Cumberland Hosp. (Brooklyn)	2	2	5	3	55	105
East Harlem Health Center (Manhattan)	1	2	2 ⁴		49	287
Fortham Hosp. (Manhattan)	1	2	4	1	355	347
Greenpoint Hosp. (Brooklyn)	2	2	6		33	171
Harlem Hospital (Manhattan)	2	1	5	2/3	194	1014
Lenox Hill Hosp. (Manhattan)	2	3	4	1-1/2	345	501
Lenox Hill Hosp. (Manhattan)	3	7	10 ⁵	2 ⁶	220	1585
Lincoln Hosp. (Brooklyn)	1	1	3	1/3	19	39
Long Island Coll. (Brooklyn)	4	2	8		144	438
Montefiore Hosp. & Hosp. (Brooklyn)	1	4	14	1	282	718
Mt. Sinai Hosp. (Manhattan)	4	9	16	1	549	3312
New York Hosp. (Manhattan)	3	7	7	1	253	1049
S. T. Kurecky & Child's Hosp. (Manhattan)	2	4	10 ⁷	1	243	524
S. T. Post Graduate Hosp. (Manhattan)	5	9	18	1-2/3	473	3646
Presbyterian Hosp. (Manhattan)	5	4	18	1	519	3421
Roosevelt Hosp. (Manhattan)	2	1	2		79	540
Sloane Hospital (Manhattan)	1	2	2			
St. John's Hosp. (Queens)	1	2	4	1	52	301
St. Luke's Hosp. (Manhattan)	3	5	21	2	389	2578
Vanderbilt Clinic (Manhattan)	2	2	4	2/3	42	
	56	106	301	23-4/15	9946	26775
Summary of Weekly Sessions						
Children's Clinic Sessions	22					
Adults' Clinic Sessions	14					
Adults' & Children's Clinic Sess. in Evening Clinic Sessions	56					
* Incomplete						
** Six months only						
*** In terms of full-time workers						

³ United Hospital Fund of New York statistical sheet for the year ending December 31st, 1921.

by private physicians.

It would appear from experience in

into account the losses in industry from the intermittent, part-time and what we may call half-hearted work which such handicapped persons can accomplish, or the cost of relief for persons or families which fall within the indigent or dependent group, where the often prolonged course of chronic disability from heart disease plays a large rôle, in the experience of relief agencies.

Recommendations

While this study was undertaken primarily in the interest of fact finding, the inadequacy of services available and the clear indications for specific improvements in facilities for prevention of heart disease, for the treatment and training of those already afflicted and not permanently disabled, and for suitable care of the totally disabled heart patient justify the presentation at this time of recommendations which concern numerous medical and social agencies.

(1) General hospitals, dispensaries and practitioners of medicine can contribute largely to the prevention of heart disease, by a quicker detection of heart lesions and lowered work capacity among the patients who pass under their inspection. Convalescent care to prevent decompensation as well as during periods of recovery is not sufficiently availed of. Brief periods—seven to ten days—of rest for apparently compensating heart patients serve a valuable preventive function and permit long postponement of the period of complete disability.

(2) Admissions to hospital from dispensary or private ambulatory office care should be arranged for at a much earlier stage of disability from heart disease than is the present practice.

(3) Most recent or acute cardiac patients should be kept at rest under hospital and convalescent home care for much longer periods than is the general practice at present. Prevention of serious scarring and deformity of valves, more effective adjustment to the obstruction or regurgitation by compensation through hypertrophy, and better assurance of permanent work tolerance, could be guaranteed if the period of rest and gradual restoration to full activity resembled more the practice followed in arresting active pulmonary tuberculosis than that commonly observed in medical hospital services for convalescents from many of the acute infections. The periods of acute hospital care are too brief for the needs of the patient, a

poor investment on the part of the hospital, and permit unnecessary subsequent preventable disease.

(4) The lesson so well learned by tuberculosis sanatoriums and dispensaries, that the case is not well handled until self-support in an occupation which spares the patient occupational hazards, has been selected and if necessary trained for, must be followed in the field of heart disease. Occupational training and vocational guidance for children and adults are essential supplements for prevention of chronic cardiac disability and valuable resources in developing compensation after adequate hospital rest and care.

(5) Although much has been done to meet the obvious needs of convalescent heart patients direct from hospitals, there is nothing approaching sufficient provision for the heart cripple, the permanently incapacitated dependent invalid who can in no way be restored to tolerable conditions of life outside of hospital care. There is needed urgently an institution of not less than one hundred beds devoted exclusively to the care of chronic heart cripples. By extension of existing insufficient services at the city institutions and at Montefiore Hospital and by readjustment of beds in our general hospitals, this seriously neglected class of patients could be further provided for. Hospitals which decline such patients because they wish rapid turnover of patients should be willing to set aside at least a few beds where prolonged care for heart patients is taken for granted, and no pressure for surgical cases or for epidemic emergencies of respiratory tract infections should be permitted to oust these helpless dependents. Extension services to the homes from existing heart clinics, comparable to the home care of the tuberculous, would meet the needs of some of this group of chronic heart cripples. Special service for a selected group of these patients in the homes might prove less expensive than hospital bed care and might well develop out of the existing heart clinics.

(6) It is not too much to hope that special jobs in many industries or even a special factory, shop, or trade unit, equipped to offer opportunities for continued occupation to the chronic heart cripple who is able to put in a part of each day in gainful work, may be provided to better the lot of this particular group.

(7) For the negroes of both sexes and all ages, the present wholly inadequate provision of convalescent

facilities which disproportionately handicap the 150,000 negroes of our population will in all probability have to be met by a more liberal policy and increase in bed capacity of existing institutions.

(8) Boys between the ages of ten and fifteen years, both white and colored, are discriminated against in the distribution of beds for heart convalescents. This lack can only be met to a trifling degree for the more robust and less recent graduates from hospital care by the opportunities at summer camps recently opened to what we may call "guaranteed cases," boy patients whom the physicians at the heart clinics approve for unrestricted exercise.

(9) With all the attention and endorsement given to the needs of the partially or wholly dependent heart convalescent, there is still an important need for a sanitarium or convalescent heart station for patients of means, akin to the admirable tuberculosis sanatorium developed for this very class.

(10) In the field of dispensary service the outstanding defect, namely a pitifully inadequate social service, can be met only by recognition of hospital and dispensary executives that their responsibility to heart patients is much greater outside than within the four walls of the examining room. According to the density of the population and the limitations to restricted districts of the sources of patients, one active well trained visiting social service worker or nurse can maintain the necessary follow-up of patients to the number of not more than 150 and usually of not more than one hundred.

The Association for the Prevention and Relief of Heart Disease intends to use its resources of education and persuasion to remedy as soon as may be the deficiencies of the services for heart patients here disclosed, and to follow this study with a careful analysis not only of the natural history of heart disease based on data already in process of collection, but to present a report upon the shortened working years of wage earners, due to cardiac disabilities, in a series of patients whose histories can be traced for a considerable period through co-operation among the social and medical services of this city.

First aid classes have been established for Federal employees at Washington in the Post Office, the Interior, the War Department, and in Navy and Justice Departments. Certain of the departments have two classes in first aid training.

Normal Training in Physical Education*

Based on Activities of the Chicago
Normal School of Physical Education

THE objective of the physical director is not the achievement of wholesome recreation for the population, nor merely the attainment in selected groups of hard musculature through planned and persistent muscular activity. It is not even the attainment of social control through directed play, though all of these ends are served and may normally be regarded as the logical by-product of a consistent program of physical education. His real purpose, however, is to find through the universal appeal of physical activity a means of education by which personality may be developed and effective, well coordinated response will automatically replace self-conscious, timid, ambiguous, and therefore, ineffectual effort in emergent situations.

Through physical education we are coming to know mind not for what it is, but by what it does. Mind is no longer detached, or considered detachable from the physical mechanism. The world of ideas is not the moral world, and the physical organization a base and despicable plane; but mind and body are one; personality is the complete expression of psychophysical being; in ways not mysterious even if only partially understood, effectual behavior finds organic registration, and the person who by chance or design manages to acquire through physical education immediacy of response along with breadth and variety of serviceable reactions is in a fair way to become the really superior person. Such a person almost surely stands out among his fellows and is everywhere conceded leadership by the unorganized throng.

Superiority then, in the presence of native ability, awaits full expression. This has particular weight in view of the train of pathologic woes that are entailed by halting or suppressed expression and the instability of persons who find themselves unable to translate mental and physical stimuli into immediate action. Errors and delays in response are to the physical educator explained in terms of psychology.

But the philosophy of physical education is not so much the subject of this discussion as the need for universal physical education, or rather, the

development of a sufficient number of adequately trained physical educators to make physical education an integral part of every curriculum in every school. It is in part to the lack of a trained personnel and the consequent fact that any sort of a self-styled director can instantly sell himself on the open market that the whole field of physical education is in confusion. Voluntary workers, entirely untrained and it may be unsuited to their task, have everywhere undertaken to organize play and recreation. Many of them have done remarkably good work and from the ranks of voluntary workers come some of the most promising recruits for consistent training in this field. The activities of Y. M. C. A. and Y. W. C. A. groups have progressed from unplanned, un-directed play opportunities to thorough programs under efficient guidance. Industrial organizations have launched competitive and social games that are a distinct and separate contribution. The orthopedists have developed highly specialized methods for corrective and developmental purposes, and rehabilitation services are a new departure with a purpose and a technic all their own.

The variety of purposes served by

these several groups would naturally seem to indicate specialties superimposed upon the general education required of physical educators, but it is not so. These special activities carry a specific appeal that is much stronger than any purely educational project and so got themselves established almost on a professional basis long before the need to supplant the old systems of mind forcing by the modern method of all round training was realized. Meanwhile, in their various ways the several groups had made good progress. Physicians were indexing physical vigor on the basis of lung capacity; workmen's compensation was awarded on estimates of restored function; the output of the factory was found to fluctuate in perfect accordance with the unnecessary motions of the operatives; and ratings of dependability—conceded to be mind plus physical training—were made on the basis of responses under stress and strain.

Naturally, the deductions that came from the observation of such cause and effect relationships have led to cults, and fads, and unjustifiable generalizations. Certain procedures have been exploited as cure-alls, rhythmic sequence has been made to account



The library at Greenwood Dormitory stimulates scholastic activity on the part of physical educational workers at the Chicago Normal School of Physical Education.

*Based on an interview with Miss Frances Musselman, principal of the Chicago Normal School of Physical Education.



Student room at Greenwood Dormitory.

for logic and the lack of it for fundamental physical defect; on individual initiative or collective propaganda exercises more or less questionable in value have been energetically practised. The remedy is plainly in the direction of more and better leaders and these are secured only through accredited students from reliable training centers.

The work of the Chicago Normal School of Physical Education is illuminative. Organized to meet the growing demand made of normal schools for supervisors, directors, and teachers in the important work of physical education, selected individuals who by taste, previous training, and personality seemed capable through further special training of becoming community leaders, are offered courses not in physical development merely, but training in such fundamental sciences as anatomy, physiology, biology, psychology, and pedagogy. Music, literature, public speaking, voice improvement, and the history of education contribute their cultural value. The faculty of the school consists of men and women of wide reputation in education for their ability to bring the students under their direction to the highest possible personal development. It is understood that pupils who are found after one year of training to be unadapted to the imposed standards of all round development are not permitted to continue the course.

Two departments of instruction are maintained. The normal department affords practical and theoretical in-

struction to students who desire to become directors of physical education, playground supervisors, dancing teachers, or swimming instructors. A nice balance between the physical and mental program is maintained. The course is not based upon any "system" of physical training. Basic cultural courses take care of interpretations, and the application of scientific principles of each branch of the profession is assured. The product of the school is a type of strong teachers,

adaptable to direct community programs as well as to undertake body building as a fundamental part of the school curriculum. Moreover, they are missionaries to a people who are everywhere lacking the full and efficient life which ensues upon a regime of balanced play and work.

There is also available a six weeks course on camp training. Personal hygiene courses treat of clothing, diet, bathing, and the care of the hair, skin and teeth. General hygiene includes the study of infection and the ethics of social responsibility in the matter of public health. Lectures and practice in physical examinations enables the students to exclude any applicants for training who show prominent signs of physical disorder. The first aid course provides against cases of emergency and accident. Summer normal courses provide facilities for advance instruction for progressive work in this field.

The criticism recently made before a meeting of physical education teachers that the rank and file of workers in this field have not yet achieved professional status has no weight among groups who submit themselves to the disciplinary regimen maintained here, and advocacy of the physical betterment of our whole people cannot find better support than that afforded by consistent, trained, and universal leadership evolved through rigid educational methods among physical educators.



The gymnasium class in action. Group as well as individual methods are employed. The new fireproof school building affords every essential of appointment and apparatus for gymnastic work.

Yale Establishes Undergraduate School of Nursing

PRESIDENT James R. Angell announced recently the establishment at Yale of the first university undergraduate school of nursing in the United States, the funds for which are to be provided by the Rockefeller Foundation. Fifty thousand public health nurses are needed in the United States. Only eleven thousand are properly trained to meet the demand. The case is now especially urgent. Therefore emphasis will be placed on public health nursing in the basic course at Yale.

This school is a new departure in education, first because of its organization and second because of its curriculum. It will be the first school of nursing organized as a separate school in a university, with its own dean, its own faculty, buildings, and budget. Heretofore nursing schools have been dependent upon medical schools and hospitals. In its curriculum the Yale school will break away from the present apprenticeship system of nurse training. That system, subject as it is to the labor demands and exigencies of hospital needs, and now abandoned in other professional fields, no longer provides satisfactory preparation for the nursing profession. It absorbs the time of the student, endangers her health, and leaves too little opportunity for educational activities. In the Yale school the nursing course will focus attention upon the educational, training of the student, eliminating many routine tasks which contribute little or nothing to this training.

By adopting this educational plan, the period of preparation for nursing can be shortened. Just how much time can be saved in the basic course under such an educational plan as contemplated, in distinction from the present apprenticeship method, has never been determined, and one of the first tasks of this new school will be a study of the period and arrangement of time required to prepare a young woman for the responsibilities of nursing and for the opportunities which are open to her profession. Recent studies indicate that a period of about twenty-eight months will be required for the course.

The requirement for admission to the Yale University School of Nursing will be a high school course or its equivalent. Primarily for the girl without college training, provision will be made for an elective pre-nursing period of university work, chiefly in

the sciences. The schedule will be somewhat elastic in order to permit young women of different preliminary training to develop in keeping with their individual aptitudes and ability.

Throughout the course an attempt will be made to present all the factors which contribute toward the diagnosis, care, and treatment of disease, and which have relationship to the conservation of health. Patients will not be considered as hospital "cases" only, but such factors as heredity, environment, child development, psychology, economics, sociology, industry, and public health will be presented in

which will ultimately be developed as a part of the Yale program. Whether or not the graduate of this school intends to go into administrative nursing, nursing education, school or industrial nursing, into the nursing of contagious diseases, tuberculosis, or mental diseases, she will have had a well-rounded preparation and understanding of the community as well as the bedside aspects of nursing and some understanding of the factors which contribute to sickness, the control of which makes the prevention of disease possible.

The plan includes a coordination of the educational work of the New Haven Visiting Nurse Association, one of the best community nursing organizations in the country, and of the Connecticut Training School for Nurses in the New Haven Hospital.

The Rockefeller Foundation after a survey of the United States has decided upon the support of nursing education at Yale. New Haven is a community of the best size for health activities. It is a university center. The Yale Medical School is well-organized, with the public health conception and a full-time staff. The New Haven Hospital has all services effectively represented. In New Haven visiting nursing is well under way at present, adequately supported and properly organized. All these conditions make possible here the development of a new and distinctive contribution to education, medicine, and the public welfare.

Miss Annie W. Goodrich, director of the Henry Street Visiting Nurse Service and assistant professor of nursing at Teachers College, Columbia, has been appointed dean of the new School of Nursing. Commenting on the appointment President Angell said: "It would have been impossible to find anyone more competent to undertake the difficult work of organizing the new institution. Miss Goodrich's extraordinary breadth of experience, her sanity of outlook, and her administrative capacities will be of the greatest value to the University in this new and interesting enterprise."

Although recognizing the project as an experiment, that its success seems assured under the leadership of Miss Goodrich is the opinion of experts in public health, nursing, and hospital work, who expressed great satisfaction over the appointment. Dr.



Miss Annie W. Goodrich has been appointed dean of the new school of nursing at Yale University. She has been assistant professor of nursing at Teachers College, Columbia University, and director of Nurses at the Henry Street Settlement. She served for a period of years as superintendent of nurses at the New York Post Graduate Hospital.

their bearing upon each problem as it is studied. Such a plan will emphasize sickness in its true relationship as a family, community, and public health problem, and properly to develop such a conception the new school will embrace field work and community nursing as a part of the basic training. This attitude will be emphasized throughout the entire period and a considerable portion of the course will be devoted to these features.

The general plan of the school of nursing should provide in this basic course a well-rounded preparation which will permit graduates to enter directly into community, hospital, or private duty nursing, or to proceed into one of the various special branches of nursing, opportunities for

C.-E. A. Winslow, professor of public health in the Yale Medical School and chairman of the Committee on Nursing Education appointed by the Rockefeller Foundation, referred to her appointment as peculiarly appropriate since "she was a member of the Committee on Nursing Education which after an extensive study of this subject for three years laid down a plan by which the training of the nurse can be organized on truly educational lines and had a large share in framing its recommendations. Experienced, energetic, and scholarly, there could be no one better fitted to place the profession of nursing in that high place in the academic world which it has earned by its brilliant service to mankind."

Dr. Willard C. Rappleye, superin-

tendent of the New Haven Hospital and professor of hospital administration at Yale says that "the contribution which the new school can make to the nursing education of this country depends primarily upon its leadership. Yale is indeed fortunate to have secured the services of one of the greatest living nurses, and under her guidance it is hopefully anticipated that the Yale school may make a great contribution to the field of nursing and public health."

Miss Goodrich's varied service both in hospital and teaching work is as follows: Superintendent of nurses, New York Post Graduate Hospital, 1893-1900; St. Luke's Hospital, New York, 1900-02; New York Hospital, 1902-07; Bellevue and Allied Hospitals, 1907-10; inspector Nurse Train-

ing Schools, New York State Education Department, 1910-14; lecturer, Teachers College, Columbia, 1904-13; assistant professor of nursing, Teachers College, 1914; director of nurses, Henry Street Settlement, 1917; dean of the Army School of Nursing, 1918-19. In 1921 Mount Holyoke College conferred upon her the honorary degree of Doctor of Science and the War Department recently awarded her the Distinguished Service Medal. Edwin R. Embree, secretary of the Rockefeller Foundation, says that "she is unquestionably the outstanding figure in nursing education in America today. She has made a distinguished success equally as director of the great visiting nurse service in New York City and as teacher and dean."

Fiftieth Anniversary of Social Workers

THE National Conference of Social Work convened in Washington, D. C. May 16-24 to celebrate its fiftieth anniversary. The presence of guests from a number of foreign countries gave to the meeting an international aspect which up to this time had not been evident, also the participation of government officials and governors from various states marked its acceptance as a great interpreter of current social thought and movements. More than four thousand delegates registered their attendance, which exceeds all previous attendance records, while more than thirty organizations, committees, and groups of allied interests held meetings coincident or in connection with the general conference.

President Folks and Secretary Hughes in their opening addresses sounded a very distinct note of optimism which pervaded the meetings, the necessity for the prevention rather than "the cure of sickness and poverty, and the reform of criminals which has been found to be, as a rule, uncertain, incomplete, temporary, expensive and long." "We are only on the threshold of a preventive program. We have devised and sharpened our tools; we have worked out our methods. It is now time to develop our fragmentary program into one that is more comprehensive and definite. Mr. Hughes remarked that the United States has scrapped world distrust and that we now have "every assurance of abiding peace, so far as our relations with other peoples are concerned." The position of the social

worker as one familiar with the problems of adjustment is peculiarly fitting. "It is in the quiet humane work done in the manifold fields of social activities that the world finds the surest promise of peace, and it is the only road that will lead humanity to its desired goal. It is the thought and intent of the heart that count. The roots of amity and mutual confidence must be struck deep in the thoughts and convictions of people until war is unthinkable."

Each day of the conference was given over to a discussion of the general problems of Health, Industry, Law, and Government, the Church, the Home, the School and Public Opinion. It would be impossible to review the papers given in the space and time allotted. Dr. Robert M. Yerkes of the National Research Council in his discussion of intelligence tests pointed out that the scientific study of human life, the gradation and evolution of traits and characteristics is of recent development but nevertheless the measurement of mentality advances steadily and systematically accumulating a wealth of experience invaluable and increasingly serviceable to mankind. Dr. W. F. Lorenz, professor of psychiatry, University of Wisconsin, discussed the results of a recent survey. He pointed out that "the mentally abnormal and feeble-minded within the prison should be segregated and breach of prison discipline by irresponsible should not be punished in the same manner that may be necessary for the mentally responsible. Proper vocational training in penal institutions is necessary

in order to rehabilitate the man." Dr. Frankwood Williams discussed the impasse which comes in the interpretations of evident facts due to the mental attitude, conscious or unconscious. The facts which indicate a given situation are a common knowledge but we must give more time, attention, and effort to the ineffective solution, to the significance and reason for opposition and delay. It is the function of the social worker to study normal life just as it is the intent of the psychiatrist, and not, as Mr. Mallon pointed out later, to conceal the faults of industry or society "playing the part of the undertaker who spirits away our failures."

Dr. Ludwig Rochman, director of the Health Section of the League of Nations, told of the work of the bureau in coordinating the reporting of communicable diseases and the spread of information concerning administration methods and expedients. The problem of stemming epidemic diseases in Russia and the border states was a peculiarly difficult one. Between three and four million persons have died of typhus alone in Russia since 1918. Nine million cases of malaria have occurred, in some localities the disease was of a very virulent type in which forty out of a hundred cases died. Dr. Biggs discussed the development of health and preventive measures in New York State, pointing out the lengthened span of life and the possibility of further enormous saving of life. Dr. Farrand of Cornell, spoke of the history and development of disease prevention, health promotion, and the increased importance of

health in social and economic programs.

The chief factors in promoting the health and efficiency of industrial workers are the payment of adequate wages, continuity of employment or participation in the soundest plan of unemployment insurance including safeguards from excessive risk from injury or disease as shown by Dr. Wade Wright in his discussion of the "Minimum Standards for Health in Industry." Only a small percentage of workers are employed in plants maintaining health departments.

The problems surrounding the defining and meeting the health needs of the Southern negro are inextricably interwoven with the health of the whites. Mr. T. J. Woofter, Jr., of the committee on interracial cooperation, Atlanta, Ga., showed that the masses of negroes, especially rural negroes, are ignorant of the requirements of sanitation, under disadvantage as to living conditions, unable to change these conditions, and woefully lacking in the organization through which a health message could be brought. Their death rate from tuberculosis is twice that of the whites, and their infant mortality too high. Dr. Rankin of North Carolina, stated that the needs of infancy for medical services are not one-fifth supplied under present conditions. "The age of childhood with from 10 per cent to 20 per cent of its population malnourished, 20 per cent with defects of vision, 5 per cent with adenoids and tonsils, 75 per cent in need of dental treatment and the entire group made more susceptible and less resistant on account of these conditions that impair vitality, needs not less than five times the medical services which this age group now receives."

Personnel problems in the store and in the factory have much in common. A common attitude has been that the interests of employer and employee are fundamentally opposite but the modern personnel manager has for his greatest task the production of harmony. Miss Oldenerentz stated that the review of discharges by the personnel worker is one of the most important steps in the work in reducing and defining labor turnover, "a serious disease of industry." The discussion of industrial technic and social ethics by E. C. Lindeman indicated the confusion and disturbance of our advance in industry not material, but social and actual.

The abolition of poverty and the creation of a public service of such practical opportunity and unques-

tioned ideals that it may be regarded as a desirable career and activity may be accomplished in the near future. Mr. Kelso sees the foremost child-care agencies as child-placing institutions. "Standards of home life, standards of efficiency in the supervision of children placed in foster homes have come into being. The congregate institution is to disappear, leaving behind it the temporary shelter and keeping these only for the briefest practicable period."

Mr. Hoover was introduced to the audience as "the greatest social worker of all times." The organization of American relief work in Europe, the defeat of the famine in Russia and elsewhere were truly remarkable. Even in Russia with American aid two million lives were lost, but without it twenty million would have been lost. Even after relief was unnecessary for adults the special problems of feeding and malnutrition among children necessitated the continuance of the work there which it is planned now to abandon with the harvest of 1923. The experience and organization of the American Relief Administration have been merged with the American Child Health Association and through them will be utilized for the benefit of American children. The good will and affection this work engendered is worth more he added "than all the battleships that could be floated in the Atlantic Ocean."

Mr. James J. Mallon of Toynbee Hall discussed the rise and development of British labor ideas and the desirability of a fuller exchange of ideas between forces in England and America. It is the function of industry not to fill the pockets of employers and financiers, but to minister to the high purposes of life. "If industry is in the future to hurt and throw down; if it is to remember the humanity of the worker, respect his personality, safeguard his strength, develop his intelligence, enlarge his status and dignity, its nature must be transmuted. It must aim not at making a profit, but at saving mankind." Or, as Mr. Johnson said, a little later "insufficient wages, insufficient leisure, insufficient employment, fatigue and unwholesome or improper working conditions give rise to a great part of our social troubles."

Dean Pound in his discussion of "Preventive Justice" pointed out the necessity of meeting a problem before the same is actually acute. "We need to reach things very much further back." "The team play between law and social work is necessary, and if

applied rightly, preventive justice is not far in the future."

Mr. Porter R. Lee in his discussion of "Changes in Social Thought and Standards which Affect the Family" gave one of the most original, fearless and thoughtful contributions to the conference.

The school as an increasingly important social factor, as a means of interpreting experience and social ideas to the child cannot be under-estimated. The same thing is true of the child of school and pre-school age. The school in reality fulfills a double function. "It furnishes young children from average homes a better opportunity for physical, mental and social development than the unaided home, and it furnishes unparalleled opportunity for the instruction of young women in the things every parent should know." According to Mrs. Woolley the environment and activities of the child outside of the school frequently defeat the advance made within the institution, for which reason a careful analysis and understanding of the child and his family is particularly desirable. "The public school has been the greatest single force in breaking down class barriers, those between rich and poor and those occasioned by difference of creed, language and race." It has done this, Dr. Dewey continues, by the sheer force of being a public institution which has assembled children and youth as a common ground for common work and play. We have reached a point when the social work in the public schools must be performed more consciously and constructively. The nation has reached the limit of its stage of unconscious movement and expansion, it has reached the stage of economic and social problems.

We can not trust any longer to natural, unguided working of democratic forces. We have to take stock, plan ahead, reform evils, and make achievement secure. The educational system must be the chief instrument in this movement—the greatest need is the awakening of teachers to their social office and function and the responsibilities therein entailed. They must recognize that they themselves are, first of all, social workers, constructive engineers of future society and its statesmen in the deepest sense."

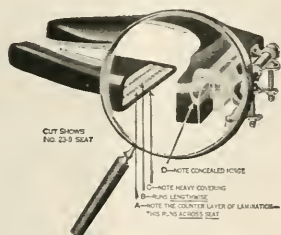
What the public thinks about social work is a theme not to be disregarded, 75 per cent nuts as one puts it. The news value of social service work and activities, and the amount of space allotted editorially and in news columns were particularly interesting.

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Baptist Memorial Hospital	Winston Salem, N. C.
Central Islip State Hospital	Central Islip, N. Y.
Chester Hospital	Chester, Pa.
Columbia Hospital	Milwaukee, Wis.
City Hospital	Okmulgee, Okla., Indianapolis, Ind., Little Rock, Ark., Houston, Texas
Coaldale Hospital	Reading, Pa.
Childrens Hospital	St. Louis, Mo.
Delray Industrial Hospital	Detroit, Mich.
Eureka Hospital	San Francisco, Calif.
Faxton Hospital	Utica, N. Y.
French Comp. Hospital	Stockton, Calif.
Good Samaritan Hospital	Portland, Oregon
German Evangelical Hospital	Chicago, Ill.
Glen Lake Sanatorium	Minneapolis, Minn.
Herman Keifer Hospital	Detroit, Mich.
Hudson County Hospital	Secaucus, N. J.
Hartford Hospital	Hartford, Conn.
Herman Hospital	Houston, Texas
Hollywood Hospital	Los Angeles, Calif.
Independent State Hospital	Des Moines, Iowa
Illinois Central Hospital	Chicago, Ill.
Independence State Hospital	Independence, Iowa
John Hopkins Hospital	Baltimore, Md.
Kelly Hale Hospital	Wilmington, Ohio
Katchikan General Hospital	Katchikan, Alaska
Missouri Pacific Hospital	St. Louis, Mo.
Muskogee City Hospital	Muskogee, Okla.
Mt. Sinai Hospital	New York City, N. Y.
Missouri State Hospital No. 2 for Insane	St. Joseph, Mo.
Mission Hospital	Asheville, N. C.
Missouri N. E. Hospital	St. Joseph, Mo.
Napa State Hospital for Insane	Napa, Calif.
Naval Hospital	San Diego, Calif.
Peabody Hospital	Webster, S. Dak.
Peninsular Hospital	Salisburg, Md.
Pontiac State Hospital	Pontiac, Mich.
Plumber Hospital	Wausau, Wis.
Riley Memorial Hospital	Indianapolis, Ind.
St. Elizabeth's Hospital	Washington, D. C.
St. Mary's Hospital	Rochester, Minn.
St. Luke's Hospital	Kansas City, Mo.
Shriners Hospital	Minneapolis, Minn.
State Hospital for Insane	Columbia, S. C.
Sacramento County Hospital	Sacramento, Calif.
S. C. Baptist Hospital	Columbia, S. C.
St. Lawrence Hospital	Lansing, Mich.
St. Mary's Hospital	Cincinnati, Ohio
St. Joseph's Hospital	Syracuse, N. Y.
Victory Memorial Hospital	Waukegan, Ill.
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Physical Training at South Bend Hospital

EARLY mental training has been a foremost principle of practice in our civilization for many centuries, as it has been in every civilized nation. The careful, intricate, and well developed plans for mental training that obtain everywhere in our land are not exceeded by those of any other social or commercial development. All agree that this is as it should be. No one would detract one iota from the importance of this procedure, but physical training, no less important, is still in its infancy.

Dr. W. H. Baker, who directs the physical educational work conducted by the social service department of the Children's Dispensary and Hospital, South Bend, Ind., has discussed this subject in a recent communication as follows:

A child before the age of six, by its mother's knee, receives its first rudimentary mental gymnastics, if we may speak of the early mental training in that way. When it enters school at six years, a suitable building and skilled person takes it into charge and carefully and thoughtfully carries its mental training through until it finishes the public schools and perhaps our universities.

The physical training at the ages from six to twenty years is, in most instances, sadly neglected. There are no well trained teachers in physical development that make a careful study of the child's physical needs and administer accordingly, as he goes through the many grades up to twenty years of age, when he should be able to continue the work fairly well undisturbed.

I would not under-rate the excellent

*Paper delivered before the International Committee for the Elimination of Unnecessary Fatigue of the Society of Industrial Engineers.

work that is being done each day by our nurses, teachers, and other public health workers in the detection and prevention of disease; but there are many who have defective bodies and practically no disease, whose homes have fair ventilation, good food, and whose bodies have fair care in general, yet who have not enough physical exercise of the right kind to keep the body in good condition. This we see in every group of boys in our Y. M. C. A. or of girls in our Y. W. C. A., when they have their trunks on, ready for a plunge into the tank. Their bodies are not well formed; the muscles are flabby instead of strong; the skin looks as if it had no blood in it; they are poorly developed; muscles and ligaments are weak, causing flat feet, curved spines, protruding abdomens, sunken chests, rounded shoulders, dangling arms, loose joints, and other equally bad fatigue signs and symptoms.

It is not an uncommon occurrence to find these children with some form of disease. These are sooner or later detected by the school nurse or physician and quite effectively treated. On the other hand, there are more and other children having no form of disease, but who from heritage or from the lack of proper every day exercise, are physically unfit.

Muscles and other tissues of the body will not get strong if they do not function. Neither do the mental facilities. It is therefore quite as important to give physical training intelligently applied, as it is to train the mind. And physical education should go hand in hand with the development and mental training of the child.

Those children who are physically weak should have special care if needed, and put into physical classes or groups of similar character for physical betterment. In order to do this, it would take one trained in such work and one who could give special and individual attention to each child

according to its special needs. This would require not only gymnasiums, but small posture rooms properly equipped, in order to give personal attention to those who need it. A weak muscle in the back that causes round shoulders or a lateral curve to the spine could better be demonstrated and better and more intelligent cooperation obtained if this child could be put before mirrors beside a child with a normal spine, and a demonstration of the curvature and the method of training be shown from day to day until results are obtained. Later such a child could be placed in groups with those of similar disorders. It is wholly unnecessary to picture what sort of a citizen a child with a strong physique will make compared with what he would have made had his physical condition been defective.

Fewer physically weak and otherwise defective conditions would exist if children were initiated early with the same intensity and determination for development of the physical being as we do the mental development, and there would be very much less suffering from illness later on in life, due to lack of strong bodies. It would especially benefit the girls of our country who later have to undergo the rigors of motherhood, and who too often, are physically unfit for such an ordeal.

The social service department of the Children's Dispensary and Hospital Association under the direction of Gertrude W. Smith, was organized in February, 1922. It is administered by one paid worker and volunteers. Stenographic work is done by volunteers. One form of record is used, no record being made of short service cases.

Acceptance of cases is based on medical diagnosis. All orthopedic, tuberculosis, mental deficiency, congenital syphilis, chorea, cardiac cases



All these children, patients of the orthopedic clinic of the Children's Hospital and Dispensary Association, South Bend, Ind., are receiving the benefit of persistent and definitely planned muscle training to overcome their defective posture.



Prescribed exercise, constant supervision by workers trained in the special methods required, and individual attention are pre-requisites for successful therapeutic exercise. The posture rooms of the dispensary are fully equipped for the work.

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Binghamton—Parlor City Shoe Co.
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Charleston, W. Va.—John Lee Shoe Co.
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are referred by the physician. All unmarried mothers from the pre-natal clinic are taken for intensive work. Dental clinics as well as eye, ear, nose and throat, pediatric, prenatal and orthopedic clinics are conducted regularly.

All children under sixteen are treated. There is no fee. Applicants are investigated by a worker from the Associated Charities staff, who hands her report in to the superintendent with no recommendations. The Social worker has the privilege of recommending a patient for care.

Most of the children are Hungarian and Polish. Improper diet is the hardest problem to deal with in the home. There are many cases of poor posture. These children are often discovered by the pediatrician when the child comes for some other trouble. He is referred to the orthopedic department and the orthopedist then refers the patient to the physical education department of the Y. W. C. A. or Y. M. C. A. with definite instructions for exercise. The physical director of each organization attends the orthopedic clinics. This is made possible by the close cooperation of these organizations.

The children are sent three times a week to posture class. Each case must be followed by the social worker as it is difficult to make the parents realize the necessity for this class when the child is not ill. It is impossible to do intensive case work on all of these posture cases. An average of seventy-five cases a month is carried. The most intensive case work is done with the unmarried mothers from the pre-natal clinic with some orthopedic and all cardiac cases.

Because of the lack of facilities for hospital care for cardiac or choreic cases, the patient must be cared for at home. Absolute bed rest for a boy of ten years is hard to secure in the home, where he does not think he is ill and his parents cannot understand. Here the food problem is most discouraging and these cases require constant visiting and admonitions from the worker.

The pre-natal cases are taken as referred by the doctor or superintendent. Hospital arrangements are made and both baby and mother followed afterwards. The social worker sends patients in to the dental clinics but only those cases referred to the orthodontist are carried by the worker. Braces required for the orthopedic clinic are provided through a fund given for this purpose by an individual, but in cases where the family is able to pay any part of this amount,



After individual work has assured progressive improvement, these little patients are arranged in suitable groups and given the added incentive of the fun involved in co-operative effort.

they do so, the social worker being responsible for this. Glasses for the children are supplied through the school nurses for public school children, the dispensary furnishing those to parochial school or preschool age children when absolutely necessary. All cases of suspected tuberculosis are referred to the tuberculosis clinic. Social need as observed by the superintendent upon admission of the patient to a clinic is referred to another agency if there is no especial medical situation.

Because of the foreign element, further schooling is hard to obtain and the children have almost no recreation. The social worker is able to accomplish this sometimes because of her contact with the family, but it takes time. Explaining to the parent so that he thoroughly understands what the worker is trying to do, teaching hygiene and proper feeding in the home and interpreting the dispensary to the community, are the chief problems of the social worker. If a patient moves from the city, a summary of his record is sent to an agency in the community where he is going, if he still needs further care.

The greatest amount of the social worker's time has been spent on cardiac patients referred feeding cases, and orthopedic work. During the past 11 months, 1,580 home visits have been made by the Social Service Department and 886 calls. Many calls were made on cases not carried as social service cases.

The Shreveport narcotic clinic, known as the Public Health Hospital, has been closed. It was the last of its kind in the United States.

Village Cooperation for Medical Services

Some years ago a young physician, Dr. E. S. Haworth settled in Sharon, Kansas, but his practice was so limited that he was forced to move away. For the next three years Sharon with its 325 inhabitants, eleven miles from the nearest town, was for the greater part of the time without a resident physician. Accordingly they urged Dr. Haworth to come back. He called a meeting of the business men of the village and laid before them a plan which was accepted without a dissenting vote.

The essentials of this plan are as follows: The Sharon Health Association was formed with a membership composed of both, families and individuals. When the head of a family becomes a member the entire dependent household receives the benefits of the organization. The physician is furnished with an office, telephone, light, and fuel, and paid an annual salary of \$3,000, which is raised by assessing each member an equal amount—that is, in case of a membership of 300 the annual dues are \$10. No annual assessment shall exceed \$15, to be paid in two equal installments in advance, after which the members receive without additional charge the services of the physician, except in major cases such as require hospital attention, these costing extra in proportion to the services required. For each childbirth or abortion an additional fee of \$10 is paid to the association for the creation of a maintenance fund. The members pay for drugs and surgical dressing individually.

Many other interesting details of this scheme was given by F. B. Ross in *The Survey*, April 15, 1923.

Telephone Company Continues Benefit Fund

The plan for employees' pensions, disability benefits and death benefits has continued in effect throughout the Bell System during the past year, thus completing a decade of existence.

The average pension bestowed by the company is \$51. There are at present almost six hundred employees on the pension rolls. The number of cases of sickness which occurred during 1922 among employees eligible to benefits under the plan was 32,185; the aggregate benefits \$2,853,627. The total accident compensation was \$828,318.

The total amount of payments during 1922 was \$4,371,208.



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Write for new pamphlet, "Foot Weakness and Correction for the Physician," just published, including chart showing exercises for flat-foot as endorsed by Medical Department, U. S. A.

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The Scope and Cost of Health Examinations*

EARLY in the work of the Committee on Dispensary Development, it was apparent that any general plan for studying and improving dispensary service must include finding out at first hand what families living in crowded districts of New York could secure in the way of care during sickness, and preventive service in promoting health. It was necessary to know what phases of sickness and health work were not being met by the existing facilities in private practice, dispensaries, hospitals, and health centers. It was first thought that a good way to get this information was to work with a dispensary unattached to a hospital, using it as a base for study of health and sickness problems in a limited area. But it proved impracticable to reach a satisfactory working plan with such a dispensary. This threw at once into relief some of the main obstacles to health conservation work—namely, that few of the doctors serving in dispensaries have an active interest in preventive work; that boards of trustees and administrators of some dispensaries do not appreciate that medical treatment should go farther than giving out drugs; that the lack of follow-up for patients treated at dispensaries often leads to a false optimism that they are cured if they do not come back; that the technic of health and preventive work has nowhere been developed, and is almost as new to the personnel of most dispensaries as a new profession.

This situation made it apparent that there should be an experimental period during which the technic of health conservation could be developed within a professional group and through which the reaction upon individual patients and neighborhoods could be studied. As the health examination is a key to preventive work, the most appropriate step seemed to be the establishment of health examining stations where physicians, nurses, and social workers might ascertain what is the true condition of people presumed to be in good health because they are not complaining of ill health; to learn how health is conserved rather than mended, and to help to educate a small portion of the public in the same direction.

The real difficulty in conducting a health clinic lies in finding healthy persons to attend it. In this study the 872 supposedly healthy persons observed revealed on examination only twenty who were not in need of health direction. Practically all of the socially dependent group stand in need of medical treatment.

Impractical people who spell service in capital letters, without counting the cost, will find this report an illuminating document in medical economics.

Private agency, state subsidy, and all the available social machinery we have must serve and serve intelligently to meet the needs disclosed.

The stations were established in connection with various district social agencies, so that while developing the technic of health conservation, data could also be gathered on the health conditions of the social groups which the agencies served. The work is under much obligation to Dr. Haven Emerson, who acted during the year as medical consultant.

Health Clinic Submerged

Late in October, 1921, health examining stations were opened at the Mulberry Community House, 265 Mott Street, under the auspices of the Association for Improving the Condition of the Poor; at the Thirty-ninth Street Neighborhood Rooms, 315 East Thirty-ninth Street, maintained by the Community Church; and at the Seventy-ninth Street Branch of the Henry Street Nursing Service, 232 East Seventy-ninth Street. After six months of work in these stations, one afternoon and one evening session being held every week in each of the three, it was hard to find the health work under the avalanche of calls for examination of the ill. The purpose of the Committee—to do health and preventive work—was being subverted by the demand for advice as to sources of treatment for the sick. This demand was met, the information as to treatment resources being supplied, and moreover, after the examinees had been told where to go, they were followed along to see how they fared in getting the treatment they required. This follow-up has thrown light on the types of medical treatment which

can, or cannot be obtained satisfactorily under existing conditions in New York.

It became essential, then, to open another station where a group could be reached that had health needs, not primarily sickness needs. Greenwich House, a social settlement on the West Side, was selected because it is frequented by people whose prime object is not the relief of illness, but who avail themselves of opportunities for physical and mental improvement. The work with such persons has raised new and interesting problems of method.

At all the stations except one, examinees were required to pay a nominal fee in order that they would respect it the more. At the Mulberry Community House, where the Association for Improving the Condition of the Poor conducts an experiment in health education through visiting nurses, this fee was waived, as the Association has adopted the principle that health service should be as free as education.

The physicians and their assistants at the stations were all salaried. Otherwise, it was felt that physicians would not feel it obligatory to attend regularly and promptly, and would underestimate the value of the work as compared with medical relief. Almost the whole of a physician's training has impressed upon him the value of his work in dealing with disease and serious conditions. Almost none of it has been directed to show that preventive measures are as important as remedial. Considering any patient's life as a whole, it is surely as valuable to him to be kept from being sick, as to be helped when he has fallen ill of a preventable disease.

In this first stage of a new experiment it was essential to find how it should best be conducted, that is, method was important; and equally, the research that made it possible to decide upon the method. For example, it may not at first glance seem essential that a policy of free or paid service was a question requiring careful deliberation and extensive inquiry. Had it not been so regarded, the choice of the wrong policy in this one respect might easily have made the whole year's work of negative value. If free service had been the keynote of the health stations, and at the end of the year it had been found that being free it was regarded lightly, that the point of the value of a health ex-

*Report of a year's practical research under the direction of the Committee on Dispensary Development, New York, by Michael M. Davis, Jr., Ph.D., and Anna Mann Richardson, M.D. 1. This includes the 872 above mentioned and 98 additional examinations, i.e., 67 from the Greenwich House and 31 from Thirty-ninth Street after January 1, 1923.

In furunculosis and similar disturbances

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proved the more effective, showing that the leucocytosis was due to the action of the *living* cells.

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amination to an individual could not be made so long as he need make no sacrifice to get it, then a whole new start would have been necessary. Similarly, with record forms. A start was made with very elaborate forms so that no possibly useful data should be missed. As time went on, the forms were tested item by item and greatly simplified by the elimination of the unessential. Careful study was made of definite types of record systems with the hope that other agencies performing health examinations in the future might be able to make use of the results of this investigation with a saving of time and trouble.

The Health Group Analyzed

Up to January 1, 1923, 872 persons had been examined at the stations, of whom 113 were men, 413 women, and 346 children. Two hundred eighty-four examining sessions were held; the sessions were of two hours each. With the 872 persons examined and 293 revisits made by them, it was found that the average number of new examinees per session was three, and the average attendance per session, including revisits, was four.

In considering the social and economic standing of these examinees, it was found that 69.5 per cent of the adults were foreign born, 14.9 per cent native born of foreign parents, and 15.6 per cent native born of native parents. Among the children examined, few, of course, were foreign born, 8.1 per cent, the majority, 54.1 per cent being born of foreign parentage. By far the largest group of examinees were of Italian parentage, about 42 per cent; of the remainder, approximately 23 per cent were American stock, 12 per cent were Irish, 10 per cent Hebrew, 7 per cent Slavic, and 4 per cent German. The remaining 2 per cent included representatives of nine other races or national groups.

The fact that 95 per cent of the examinees were referred by nursing or social agencies is one of the chief reasons for low economic status as shown by the social records. Only 21 per cent of the group had adequate financial support, 54 per cent were "getting along" upon insufficient income, and 22 per cent were dependent upon relief from an outside source. Eighty per cent of the families were living under crowded conditions with less than one room per person.

The applicants examined, because of their poor physical condition and limited resources, have not permitted the fullest development either of the health examination or health instruc-

tion. Postural defects, flabby muscles, and even flat feet had to be ignored until existing disease processes or serious physical defects received attention. Only twenty individuals out of eight hundred seventy-two were found to be "normal," i. e., requiring no treatment or health direction.

Health advice was given in writing to all examinees requiring such regulations who were not referred elsewhere for treatment. Care was taken not to give directions in hygiene to those going elsewhere for treatment, since this might have been an interference with the doctor under whose care they were to go. Approximately 52 per cent of this health advice related to diet, including the drinking of water. Fourteen per cent of it related to exercise and fresh air, and 10 per cent to cleanliness.

The nursing service in the clinic consisted in assisting the doctor in taking blood for Wassermann and other procedures, as well as caring for his instruments and making routine tests of the applicant: temperature, pulse, weight, urine (sugar, albumen, specific gravity), hearing and vision.

The facts regarding the social and economic conditions of examinees have been provided by means of a record form which the agencies interested filled in previous to the examination. The necessary cooperation with social agencies for the follow-up gave further opportunity for the development of the social aspects of the preventive health work. To the social agencies that had referred their applicants to the stations, detailed reports of the entire physical condition of the applicant were rendered with reference to clinics, and the examinee himself was, whenever possible, stimulated to see himself through to complete recovery.

Portable Equipment

Certain facts have been gained from this experience regarding both time and cost of the examination as well as the necessary equipment. Our conclusions regarding cost are explained later. Regarding equipment, we found that the essential items are those usually provided in an office equipped for private practice. For purposes of convenience, this equipment has been fitted into a suit case (15x22x5) that can be carried from place to place. It contains sheets and one dozen examining robes, besides the instruments and urine outfit, and weighs about forty-seven pounds. Scales are not part of the usual port-

able equipment, but are generally found in schools, settlement houses, and other places where examinations might be made.

As to time, if the physician does everything, including the taking of the social and industrial history, and instructing the examinee, it takes him at the least one hour. Where the applicant comes with history prepared and tests performed, with the social worker to instruct the examinee, the minimum time is twenty minutes. There is marked personal variation both in the doctors' methods of spending time and the needs of the special applicants. It takes the doctor about half as long to find out what is the matter with an examinee as it does to record this and interpret it to the applicant. Elements affecting time are: The general intelligence of the examinees, their understanding of the language, the adequacy of their support, and the readiness with which they recognize the need for change in their habits.

A special effort was made to get information as to the extent to which the applicants needing treatment actually secured it. Since few could afford to pay for private medical service, nearly all of them had been referred to the dispensaries. The social agencies were in general responsible for the follow-up of cases and reports secured by our health stations from these agencies in every possible case. A special study of the experience of the patients in dispensaries is under way. Thus it is found that of 603 persons referred to the dispensaries, 368 actually went for treatment. Many of the obstacles in the way of their going will be suggestive to those interested in improving out-patient service, and it is expected to bring these out in a special report.

At the beginning of this experiment certain questions were in mind to which it is felt the health examinations thus conducted ought perhaps to give an answer. In considerable measure, this can now be done. For the sake of definiteness the conclusions thus far reached are stated under a series of nine headings:

(1) *Suitable Subjects for Health Examination.*—Health examinations are indicated for persons not obviously ill, having a financial margin to live above the bare necessities, and sufficient intelligence or imagination to be willing to exert themselves to improve their own condition. Experience indicates that persons who are below these financial or mental levels are chiefly benefitted through the discovery of diseases or defects rather

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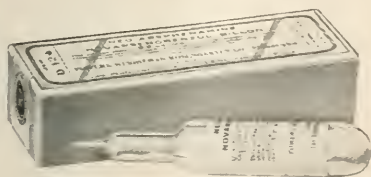
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than by the receipt of constructive advice for the promotion of health; for without financial margin there is small opportunity for personal development, and without intelligence or imagination the individual does not endeavor to carry out health advice and instruction.

Our experience with the socially dependent group has demonstrated that the majority of such persons require medical treatment. Need for constructive health work among this group is generally found to be secondary to the immediate need for medical treatment, and for the correction of physical defects.

The health examination is useful to such examinees in revealing medical needs, but its special functions of constructive work for the conservation and promotion of health are in such cases necessarily subsidiary because of the presence of active illness or of serious physical defects.

A modification in the type of examination particularly adapted to the client of the charitable organization has been developed. The emphasis here is upon the discovery of physical defects and diseases, and the nature of the treatments needed. It is not believed desirable, however, to limit the examination of such persons to a brief looking over to discover outstanding diseases and defects. A more complete physical examination is advantageous for this makes possible some appraisal of the examinee's physical assets.

(2) *The Health Needs of the Group of Persons Thus Far Examined.*—The examinations have demonstrated that nearly all of the examinees were in decided need of medical treatment or of hygienic advice, or of both. Out of 970 persons examined, but 603 or 62.2 per cent required medical treatment; 343 or 35.4 per cent needed hygienic advice and guidance, but not immediate treatment, and 24 or 2.4 per cent were regarded as "normal," needing neither advice nor treatment. In the children's group the percentage needing medical care was about the same but the percentage found normal was higher.

The medical significance of these findings will be interpreted in a special article of a more technical nature. The outstanding defects found were those usually apparent in medical examinations—dental defects, errors of vision, diseased tonsils or adenoids, and defects of posture and hearing being the most noticeable in the order named. Of diseases or abnormal functions, the outstanding ones were malnutrition, constipation, and cardiac

diseases. Eighty-five cases of laceration of cervix or perineum, and fifty-seven cases of uterine defects or diseases were found among the 413 women examined.

(3) *The Relation of Health Examinations to Private Medical Practice.*—Health examinations reveal a large number of conditions requiring medical treatment. The persons who, as above defined, are most suitable applicants for health examinations, will usually call in private practitioners to care for these needs. The health examinations themselves offer opportunities for physicians to give service and receive compensation.

(4) *Technic of the Health Examination as Compared with the Usual Medical Procedure.*—Any well trained physician can learn to make the needed examination but to be successful or effective from the patient's point of view the physician must be as much interested in promoting health as in treating disease. Many physicians experience difficulty in devising suitable directions for examinees in relation to needed modifications in habits. This is largely due to the fact that detailed knowledge of the relations of habits to health has not been formulated.

(5) *Medical Scope of the Health Examination.*—A health examination is an examination of a person by a physician for the purpose of appraising the degree of bodily efficiency or well being, of indicating weaknesses or defects, and of advising hygienic and remedial measures.

A health examination must, therefore, include the careful physical examination of the body, and also inquiry into the occupation, habits, personality, and home environment of the individual.

The health examination is thus best performed by a doctor who stands to the examinee in the relation of family physician; otherwise, time must be taken by the physician to inquire with special discernment into those aspects of the patient's personality, occupation, habits, and environment with which the family physician would be familiar.

The purpose of the examination being to promote better health as well as to suggest steps towards remedying any existing defects or diseases, the examination should lead to advice to examinees regarding: (a) Treatment, if any, needed for existing disease or defect; (b) hygiene of life, particularly diet, occupation, sleep, exercise, and recreation.

Advice resulting from the health examination should be given to the

examinee *personally* by the physician. All laboratory, x-ray, or other tests, and all reports of findings by any specialists who have been called upon in connection with the examination, should be considered and interpreted by the physician, who then gives the examinee advice under the two headings (a) and (b) above.

It is not desirable that any written statement of medical findings be given to the examinee unless put in such terms as to be clearly understood by the examinee in its practical significance to himself. Technical statements should be given only to a physician who may be called upon to give the person treatment. A written memorandum of instructions to the examinee of things which he should do is generally useful as a supplement to the verbal instructions.

(6) *Cost of Health Examinations.*—These examinations have been undertaken from the research point of view and this has added considerably to the cost. A good deal of time has been spent in making arrangements with patients, securing information from them, making connections with the organizations or persons through whom needed medical treatment would be provided, and this has added substantially to the salary charges for non-medical assistance. On the average our examinations during this year's experience have cost \$5.69. No allowance has been made in this figure for broken appointments, for rent, heat, light, cleaning of quarters, etc., as these have been in every case provided by an agency without charge. Initial cost of professional equipment is not included.

This figure is based upon our original rate of payment for the medical service, which was five dollars per session of two hours. It was our plan, however (which has been carried out) to increase the payment to eight dollars per session after the physician had been with us for one year. This increase has raised the expense for the medical service, but is somewhat counter-balanced by a reduction in the cost of clinic management, for physicians accustomed to the work can do more within a given time, and require less assistance.

During the past year it was found that of the total expense the payment for medical service was 29 per cent, maintenance of equipment 6 per cent, while the remaining 65 per cent went for non-medical salaries, i. e., nursing, clinic management and clerical help. With the increase in medical fee and greater facility on the part of the physicians and less non-medical assis-

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tance, these percentages will be substantially changed with consequent increase in the proportion opposite physicians' salaries. Where the scope of the examination is reduced because the outstanding problem is the discovery of disease and defects, to which constructive health advice is necessarily subsequent, a simpler type of record and a briefer period of examination is possible with corresponding reduction in cost. Where the examinees belong to an organized group of some kind so that the staff for receiving them, securing information from them, and assisting in the carrying out of instructions can be reduced to a minimum, the cost would be still further lowered. We would estimate that the cost of an examination at the salaries above indicated would vary between \$2.00 and \$6.00, depending upon the conditions indicated. We hope during the present year to work out specifications of the expense of types of examinations adapted to various requirements. The above figures are tentative.

(7) *Auspices Under Which Health Examinations Should be Conducted.*—

(a) *Private practice.*—It is believed that the main resource for health examinees among the general population should be the private practitioner of medicine. (b) *Medical institutions.*—For those unable to pay private fees or needing special study for which laboratory, x-ray, or the consultation of specialists is required, health centers serving defined areas, or health clinics organized as divisions of out-patient departments of hospitals, are necessary. (c) *Health examinations* would seem to be a suitable form of preventive work in which the municipality may well engage through its health department. They would also seem a proper field for support by private health agencies and for development by life insurance companies and large business establishments, particularly during the present period of experiment in methods of such examination, and until public understanding and interest is sufficiently active and stable to insure sufficient municipal appropriations.

(8) *Best Locations for Health Examination Centers.*—Large general dispensaries should include health examination clinics, but experience indicates that in order to reach any considerable proportion of those needing health examinations, local stations are also necessary. As with other forms of preventive work, utilization of an opportunity by the mass of the population is greatly facilitated by proximity to the home.

(9) *Health Examinations for the Clients of Charitable Societies.*—Examinations conducted at the central office of each society would require its clients to come from all parts of the city, and would present great practical difficulty, besides the expense of transportation and escort. Local stations maintained by each society independently will usually be on too small a scale and under too little expert medical supervision to give maximum efficiency and economy.

Local stations providing health examination service for the clients of charitable organizations, would be the most economical and efficient method of meeting the need. Cooperative financial participation by charitable and health organizations in maintaining such examination centers may be indicated for some districts, while in others, arrangements for special examining clinics in the out-patient departments of hospitals may be the preferable plan.

Rhode Island Mental Hygiene

INADEQUATE facilities at the Exeter School for the Feeble-minded, insufficient provision for the identification and special training of the mentally defective children in the public schools, and the urgent need of a state psychopathic hospital are the outstanding features of the Report of the Mental-Hygiene Survey of Rhode Island, conducted by the National Committee for Mental Hygiene. The survey conducted under the supervision of Dr. Samuel W. Hamilton, director of the Division on Hospital Service of the National Committee.

The parsimonious attitude of the state toward the Exeter School for the Feeble-minded established in 1907, has not permitted the institution to function other than as a custodial asylum.

The institution is greatly overcrowded and its activities are interfered with by the presence of beds in every available space—even in the school building where but two rooms remain for teaching purposes. The superintendent is the only physician on the grounds and must, in addition to his executive work, care for all cases of physical illness. There is but one academic teacher. Such manual and industrial training as is given is by untrained teachers. Vocational training is not possible because of lack of funds. There is great difficulty in securing attendants on account of low salaries and inadequate living quarters. The fire risk is great. There is a waiting list of two hundred. In the meantime, the state is finding it necessary to care for, in institutions not designed for them, a total of 232 mental defectives, or about 70 per cent of the number at the Exeter School.

The state program for mentally defective persons advocated by the report is briefly:

(1) Examination and registration of all school children who are seriously behind their grades and of all

children who are excused from school attendance because of mental handicaps.

(2) Provision in every school system for special training to be given those who cannot profit by the regular school curriculum.

(3) Continued supervision of mentally defective persons, whether or not they have been in state institutions.

(4) A law permitting certified mental defectives to leave school at the age of fourteen and receive industrial training under state supervision.

(5) Legal recognition that mentally defective individuals are throughout life wards of the state and entitled to protection.

The following changes in legal provision as pertaining to the insane are advocated; simplification of the commitment procedure, so that persons needing treatment may not be denied treatment on account of cumbersome legal requirements; provision for commitment for observation on the certificate of two physicians; provision for emergency admission for a period of ten or twelve days; abolition of the requirement that the patient must appear in court; arrangement by the hospital and not the police for the transportation to the hospital of a patient committed; and by broadening of the voluntary admission law.

The report further recommends a travelling clinic for the examination of the school children of the state, and a follow-up system whereby supervision and guidance would be afforded the pupils needing such care.

An increase in accommodations, personnel, salaries, and the construction of a separate building for insane prisoners are some of the needs of the state hospital.

A more detailed account of the survey and recommendations is contained in the *Mental Hygiene Bulletin*, April, 1923.

4 MONTHS' RESULTS



A Springfield (Mass.) woman suffered from flat feet and bunions caused by wearing narrow-toed shoes. A local doctor advised her to wear

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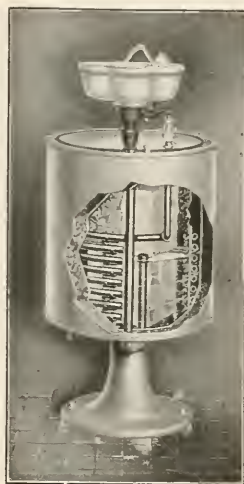
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Public Health in the College Curriculum*

IN ORDER that all students as individuals may learn to live healthfully, efficiently, and abundantly and in order that they may later assume their part as leaders in the community, it is recommended that a one- or two-semester course in personal and community hygiene of approximately three hours per week be required of all first year students.

In addition, a required course in biology for freshmen students is advocated by some administrators.

The course in personal and community hygiene should be in charge of an instructor whose chief interest is health education in its broader aspects and who has had special and recent training in this field. This person may be the professor of hygiene, public health, physiology, biology or physical education; the gymnasium director or athletic coach is not likely to be a suitable person. The course should not consist merely of a symposium of lectures; it is particularly undesirable to bring in a number of practising physicians to lecture on their various specialties.

In the development of that section of the course dealing with personal hygiene, it is necessary to use particular care, if desired results are to be obtained. In the colleges of the United States, there is at present a wide variation in the effectiveness of personal hygiene instruction. The course should deal with various health problems revealed by the physical examinations at the beginning of the freshman year, or by periodic examinations in colleges where they are given. The mere imparting of information in such a course is insufficient. A student may be fully informed in regard to disease and its prevention and yet conduct himself in such a way as to contract specific diseases or gradually to deteriorate in health if motivation for the development of proper health habits has not been provided. It is important to show the relation between healthful living and ef-

ficiency and happiness, and health ideals must be developed. It is also important that living conditions, physical exercise, study program and health supervision should be such that the students while in college may establish correct habits of living.

The second section of the course dealing with community hygiene should have the same careful attention as the first half. Through proper teaching in this field, colleges and universities may produce leaders in civic life who will be effective in developing better health work in municipal and state governments.

Education for Health Work

The selection of courses by those students who plan to enter public health work as physicians or as sanitary engineers will be determined by the requirements of schools of medicine, public health, and engineering. Increasing numbers of students, however, are entering public health work without a medical or engineering degree. Some of these will seek minor positions immediately upon obtaining the A. B. degree. Others will take graduate work for the A. M., M. S., C. P. H., Ph. D. or other higher degree.

In general, it is desirable to provide for such students a solid foundation of courses in the basic sciences, particularly general biology and physiology, for the first two years. Because of the increasing attention being given to the economic and sociological aspects of public health work, one or more courses dealing with the basic principles of sociology, or "social economics," should be included; a course in social psychology—preceded, if possible, by a course in general psychology—will also be very useful as a basic subject.

During the last two years of undergraduate work, vocational subjects may be provided. Under such a plan, the student who in his third year may decide to become a bacteriologist will have had during his first two years a background in biology, physics, chemistry, and mathematics; then in his last two years he will be able to specialize in bacteriology, immunology and serology. Similarly, should there be provided during the third and fourth years various vocational courses for those planning to enter the

fields of vital statistics, public health education, dietetics, physical education, hospital social work, and public health nursing. This plan is already in effect in numerous colleges and universities.²

Those who do graduate work in preparation for service in these various fields will be able, of course, to select additional courses which will broaden their background and afford them a more thorough knowledge of the fields in which they specialize.

Sneeze Gas as a Suicide Preventive

"They will sneeze themselves back to life," said Gen. Amos A. Fries of the chemical warfare service, when he told at the meeting of the American Chemical Society at Yale of a new sneeze gas compound that can be used in illuminating gas to prevent suicides or accidental deaths from gas poisoning.

Diphenylchlorarsin is one of the suicide preventives. If you cannot pronounce that try "diphenylaminarsin." These were used in the war. There is another one now being developed in the chemical warfare laboratories that is a worse sneeze producer and yet is less poisonous. Add only one part in 10,000,000 of gas and no sleeper, no matter how intent on self-destruction, will be able to stay in the gas-filled atmosphere long enough to die, said Gen. Fries. But when the illuminating gas is burned the sneeze gas goes up in smoke and becomes harmless. There is therefore no danger of the air being badly polluted except when the dangerous unburned gas is escaping.

Gen. Fries predicted that if gas companies adopted and developed this peacetime by-product of chemical warfare, that suicides and accidental deaths due to gas will greatly decrease. There has been a marked increase in accidental death due to the increased use of small gas heaters that have no flue connections. When these burn ordinary gas, a tasteless, colorless, odorless intensely poisonous gas, carbon-monoxid, is poured into the room. Sneeze gas will act as a respiratory red flag and make this dangerous stuff detectable. No tenable objection can be made to its use and the interests of all would be served.

2. Helpful information regarding courses of study offered by various universities may be obtained upon application. Address the U. S. Public Health Service, Washington, D. C.

*This report on Courses in the College Curriculum Dealing with Public Health is recommended by the Surgeon General's Advisory Committee on the Education of Sanitarians which is composed of the following members: D. L. Edsall, chairman; C. E. A. Winslow, vice-chairman; A. J. McLaughlin, secretary; A. C. Abbott, C. C. Bass, Haven Emerson, W. H. Howell, E. O. Jordan, William H. Park, W. S. Rankin, Wickliffe Rose, M. J. Rosenau, F. W. Sears, John Sundwall, C. E. Turner, Henry F. Vaughan, Victor C. Vaughan, William H. Welch, Ray Lyman Wilbur, E. G. Williams, and Linsly R. Williams. The members of the Subcommittee participating in the preparation of this report include: Maurice A. Bigelow, Robert E. Chadcock, Donald W. Davis, A. T. Poffenberger, Wickliffe Rose, Isabel Stewart, John Sundwall, C. E. Turner, Jesse F. Williams.

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Nutrition Work in Arkansas

IN the south central part of Arkansas there is located, along the banks of the Arkansas river, the third city in the State in population, but not in progress. Jefferson County, of which Pine Bluff is the County Seat, is in what might be termed, the middle of the Arkansas "Black Belt." In fact, the negro population outnumbers the white some ten per cent. From this one can readily see that the Public Health problem is unique.

At the close of 1921 nutrition work in the public schools was an unheard of innovation. In January, 1923, there were fourteen white nutrition classes, and two negro classes in operation, under the auspices of the Jefferson County Tuberculosis Association.

The results obtained from the inauguration of these classes has been most startling and to those not cognizant of nutrition work, the results are almost beyond comprehension, according to information received from Miss Virginia Misenhimer, executive secretary of the Jefferson County Tuberculosis Association.

In February, 1922, one school had a total of seventy-two per cent underweight children; in December, 1922, the total was fifty-two per cent, showing a reduction of twenty per cent. In a school where no classes were conducted, the total percentage remained the same.

After the work in the white schools had been thoroughly established and practical results obtained, attention was turned to the negro population. In selecting children for negro classes, the weight record determined who shall enter. The majority of these entrants are ten per cent or more underweight. A practice is made of selecting a few children for the class who are free to gain and who are not so much underweight, because we have found the diploma, plus the ceremony of graduating, stimulates the child, to continue his efforts.

Each child has a thorough physical examination including blood tests for malaria, and tests for intestinal parasites. In the recent physical examinations made, no malaria or hookworm was found, but a number were listed as tuberculous or "suspects."

The examinations are made gratis by private physicians of the city and with the aid of the state laboratory, an effort is made to find the cause of underweight in each child.

The individual weight chart creates much rivalry and the keenest interest is displayed in the race for the gold star.

In teaching the young children we use health stories, health songs, caricatures and bi-monthly compositions on health. In addition each child who belongs to the nutrition class is enrolled in the Modern Health Crusade.

For two years the Crusade was placed among the entire student body, but for lack of additional workers, plus the manner of living of the majority of our negroes, the Crusade did not produce satisfactory results.

In place of the Modern Health Crusade, we have used leaflets containing questions and answers on tuberculosis and malaria. This method of instruction so far has proved very satisfactory.

For various reasons, the work among the negroes will be somewhat limited for a number of years, but in view of the fact that the local board of education has incorporated the public health program as a part of the school program, an era of general success in our propagation of social and health education is anticipated.

Course in Medical School Inspection at Columbia

A course in the principles and practice of medical inspection of schools and school children will be offered to physicians at the School of Medicine of Columbia daily from 10 to 12 a. m., except Saturday and Sunday, during the six weeks of the summer session (July 9-Aug. 17).

This post graduate course (Equivalent to six points in Academic Credit) in one of the most important functions of public health service is designed to meet the requests of physicians now engaged in Medical School Inspection under Boards of Health or Boards of Education, on whole or part time basis, who wish to equip themselves better for their work, and prepare for advancement to positions of greater responsibility, and to provide appropriate instruction to those who wish to enter this field of administrative medicine.

The instruction, which will be provided by lectures, demonstrations, practical exercises, class discussions, and preparation of individual reports on selected topics, will be given by a number of especially qualified persons, physicians, school administrators and others, under the direction of Dr. Haven Emerson.

The following main divisions of the subject of Medical School Inspection will be dealt with in detail: School sanitation; medical examinations of school children; communicable disease control; psychiatric problems of school age; preventable defects of eyes, teeth, heart, posture, and nutrition; health education in schools; and administrative problems of doctor, nurse, and teacher.



Not so long ago nutrition work anywhere in Jefferson County was an innovation. In 1921, fourteen white nutrition classes were conducted, and two were carried on exclusively for negroes.

"Superior to Digitalis"

(This is *not* a drug advertisement)

WHEN such an authority as Hobart A. Hare, Professor of Therapeutics, Materia Medica and Diagnosis, at Jefferson Medical College, Philadelphia, says in his *Practical Therapeutics*: "So useful is caffeine in cases of cardiac disease that it has largely supplanted digitalis in the hands of some practitioners"—

When another equal authority, A. A. Stevens, Professor of Applied Therapeutics at the University of Pennsylvania, says in his *Therapeutics*: "In the circulatory failure of acute infections, such as pneumonia, influenza, typhoid fever, etc., the action of caffeine is at times superior to that of digitalis"—

And when another equal authority, Oliver T. Osborne, Professor of Therapeutics at Yale University, says in his *Therapeutics*: "Caffeine is

quickly absorbed and acts quickly and it should be remembered that caffeine is as well administered in the form of strong coffee as in any other way"—

—you can appreciate that Coffee is much more than a pleasant beverage; that it is a general article of diet which you can frequently turn to good account in case management.

The thinking physician of to-day recognizes this and does not thoughtlessly strike Coffee from the menu without *clinical indications*. He does not *unnecessarily* take from his patients an appetite excitant, an aid to digestion, a peristaltic stimulant.

To most Americans, Coffee is as essential to the enjoyment of breakfast as the morning paper. Don't take Coffee off the breakfast table without diagnostic indications.

Woman Heads Health Department



By the recent appointment of Miss Gertrude M. DeWitt as its health agent the city of Chicopee can lay claim to the unique distinction of being the only city in Massachusetts and probably in New England with a woman as the administrative head of its Board of Health.

Public Health Conference

A highly successful conference was held at Springfield, Mass., April 26-28, with Dr. Kelley, state commissioner of health as chairman, and with a representation from sixteen participating organizations representing all the various voluntary health forces of the state. The program covered reports on the work of the various co-operating organizations with special sessions dealing with, Red Cross Health Work, the Tuberculosis Program, the Mental Hygiene Program, the care of Infant Paralysis, Rural Health Work, Public Health Dentistry, Public Health Nursing, and School Health Work. A special committee was appointed to consider the possibility of issuing a joint health bulletin including the various health organizations of the State and also the possibility of opening joint offices for the various health associations in Boston.

The revenue in 1919 for soda beverages was the greatest in history. The consumption of mineral and soda waters has shown an increase from \$58,400,000 in 1914 to the sum of \$115,577,000 in 1921, according to figures compiled by the census bureau. The trade in 1919 was valued at more than \$135,340,000. This includes all kinds of carbonated and fruit beverages, ginger ale, and other so-called soft drinks, but does not include natural spring water.

Fellowship in Psychiatry

As a result of a gift from the Commonwealth Fund to the National Committee for Mental Hygiene, the Division on the Prevention of Delinquency has a fund for fellowships in psychiatry. Those securing fellowships will be placed under training in the clinics now being conducted by this division. The object of the fund is to prepare properly qualified psychiatrists for positions in connection with permanent clinics that are now being organized through the activities of the demonstration clinics conducted by the National Committee for Mental Hygiene. The fellowships will be awarded by a committee composed of Dr. Thomas W. Salmon, Mr. Barry C. Smith, and Dr. Frankwood E. Williams. Those interested in securing information regarding the fellowships may address Dr. V. V. Anderson, director of the Division on the Prevention of Delinquency, the National Committee for Mental Hygiene.

Millions in Refuse Thrown Away

Fire Chief John Kenlon, after a survey of refuse disposal methods in many cities of Germany, France, and other parts of Europe, has recommended in an extensive report to Mayor Hylan that New York's refuse be burned, says the *New York Times*.

The conclusions of Chief Kenlon coincide closely with the conclusions of others. A committee acting for the Merchants' Association has made a study of the question and recommended a zone incinerator plan whereby all the refuse of New York would be burned. John McEwen, sanitary engineer, after an independent study of the subject, has recommended the same thing and offered figures to prove that New York's waste disposal system could be made to pay for itself and return an income.

The incinerators used in Rotterdam, Zurich, Frankfurt, and many other European cities burn everything to a hard clinker, the value of which for concrete is said to equal or exceed that of broken stone. Crushed stone in this country, used in ordinary concrete construction, costs from six to eight times the production cost of this incinerator clinker, which would create a source of income to the city.

The Public Health Committee of the New York Academy of Medicine has just made public a report, according to which New York's refuse material has now reached a total of 3,705,000 tons annually. The report says fur-

ther that the total cost under the present system to the city of caring for this waste is twenty million dollars a year. Almost three-quarters is ashes. Rubbish of one sort or another comes to 270,000 tons; garbage, 440,000, and street sweepings, three hundred thousand tons.

In New York, according to the Featherstone report in the transactions of the American Society of Civil Engineers, the refuse contains a heat value as high as 30 per cent of coal. Thus the 3,000,000 tons of waste would have the heat value of nine hundred thousand tons of coal. Transformed into power this would mean six million dollars a year.

Correct Menus for School Children

A good mark in school often depends less on how hard a child studies than on what he is eating, say specialists in home economics at Cornell. Especially is this true in cold weather when the right food is necessary not only to supply the energy for play and other activities, but for keeping warm.

The following is offered as a satisfactory daily menu:

For breakfast, orange, prunes or dried apricots, oatmeal, a wheat cereal or cornmeal; there should be milk or weak cocoa and toast, preferably of whole wheat bread.

For dinner, the main dish may be macaroni and cheese or an egg, or—two or three times a week—a small serving of meat, a baked potato, buttered carrots, onions, beets or a green vegetable, whole wheat bread with butter, a baked apple and milk.

It is better for a child to have dinner at noon than at night; in case, however, the noon meal must be hurried so the child can get back to school, the supper menu should be given to the child at noon, and the dinner menu as early as possible at night.

For supper, a cream soup is especially good in winter; cream of potato, carrot, celery, spinach or bean soup are also recommended. For a vegetable, celery or buttered onions or tomatoes may be served, with whole wheat bread and butter. For dessert, there may be baked custard or rice and raisin pudding or stewed fruit, with oatmeal or ginger cookies and, of course, milk.

Changes may be made in all these menus; for instance, a variety of fruits and vegetables may be chosen, but the general plan should be held to closely.

The NATION'S HEALTH

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Special Reference to Industrial and Institutional Problems

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Number 7

The School Architect's Problems As Related to Public Health

*The School Is Now a Going Concern, Not a Static, Crystallized Institution
and Modern School Environment Leaves the
Children Free to Grow*

By W. G. ECKLES, ARCHITECT, NEW CASTLE, PA.

DURING the last few decades the practice of architecture has become wonderfully complex. The designers of earlier buildings were principally concerned with the questions of construction and design. Modern civilization, however, has accumulated many wants that must be satisfied at great expense and much study. In no branch of architecture have these changes been greater than in planning and building the modern public school.

The requirements of plumbing, heating and electric equipment are each so important in modern school work as to require expert engineering knowledge for their proper planning and installation. Domestic science, manual training, physical education, cafeteria equipment and all such new and modern departments also require most careful study, much apparatus, and special equipment.

The fundamental requirements of lighting and ventilation have become

pretty generally agreed upon and most states have enacted legislation fixing the minimum requirements, but even in these there is still a marked tend-

formerly twenty-five to twenty-eight feet was a standard practice. The benefits from this are principally that a much more uniform illumination is obtained. With the wider class room the pupils occupying the inner rows of seats were at a distinct disadvantage. Much greater attention is also being given to the matter of efficient artificial lighting, made necessary by the increasing use of school buildings for night school. The proper working out of these problems greatly reduces the eye strain affecting both pupils and teacher.

In the matter of heating and ventilating the principal improvements have been in the general adoption of the indirect method merely for ventilation purposes and the use of direct radiation under or near the windows for heating purposes. Under the older method of purely indirect heating there was a tendency to overheat the air and the room was often unevenly heated. Under the divided system the



A good demonstration is given here of the effectiveness of overhead lighting for gymnasium work.

ency to improve these more or less standardized requirements. In lighting this takes the form of narrower class rooms, preferably twenty-two or twenty-three feet in width, while

radiators at the windows overcome the heat losses and secure an even temperature throughout the room. Both the direct and the indirect radiators should have automatic control. Some of the devices for humidifying and washing the air have been quite successful and where used are a distinct advantage both in the matter of health and in general operating costs. Recent study of the heating and ventilating problem shows that merely heating the room to a given temperature and supplying a certain amount of fresh air is not sufficient. It is shown that the most important point in connection with healthful atmospheric conditions is not necessarily low percentage of carbon dioxide in the air but rather the humidity as measured by the wet bulb temperature. This subject is being well covered in the series of articles by Dr. E. Vernon Hill in the *Heating and Ventilating Magazine*.

Increasing attention is being paid to the matter of simplifying the amount of travel between the various portions of school buildings. In all schools the tendency is to dispense with the expensive and unsatisfactory basement and, where the size of the lot will permit, to confine the height of the building to the main floor and second floor. Many grade buildings are successfully planned, one story high, with the central hall expanded into a large play room with a stage in one end entirely dispensing with stairways. This idea in being applied to two or three story junior and senior high schools takes the form of a central auditorium on the ground floor with a gymnasium immediately back of the stage and with the corridors immediately adjoining, leaving out the expensive and old-fashioned light courts, the light for the auditorium coming entirely from overhead. The advantages are a considerable saving in first cost, greater conveniences, a more attractive appearance, and a very considerable lessening of the travel between the various parts of the building with less difficulty in going from one floor to the other. This method necessitates overhead lighting for the

auditorium and often the gymnasium, which has been found to be very satisfactory and entirely practical.

Of all the modern developments of school work perhaps none is of such



A good swimming pool is the most popular thing about a modern school and incidentally gives the best exercise.

wide-reaching importance to the community as the teaching of the household arts and the serving of noonday lunches. The latest high schools have been equipped with the most complete provision for the teaching of domestic science, sewing, laundry work, and the demonstration of proper housekeeping methods by the furnishing and equipment of a model housekeeping suite including entrance hall, living room, dining room, kitchen, bedroom, and bathroom. The influence that goes out from the teaching in these departments is very far reaching among all classes. Its value is most

day and increasing the use of the building and the efficiency of the investment in the plant. Under the old plan of operation the high schools were operated from 8:00 or 8:30 until 12:30 or 1:00 p. m. This made a long forenoon session, a late lunch hour, and a very much hurried program, with consequent strain on the nervous systems of both pupil and teacher. The new method permits the lengthening of the day so that all periods can be made a part of the school program giving the pupils opportunity for class meetings, athletic instruction, and the many special activities which have so entirely changed the social atmosphere of the modern high school for the better.

These lunches are furnished and served usually under the direct supervision of the director of domestic science and household arts and of the most simple and wholesome ingredients and practically at cost. Incidentally, the pupils are taught the use of proper and inexpensive diets thus helping to spread the good influence of the domestic science department to any pupils not taking instruction directly from that department. The cafeteria, where properly administered, is used by the very large majority of the pupils, at least in part, and greatly assists in stimulating the social activities as well as helping in the administration of the regular curriculum.

No modern school can be considered entirely equipped without a medical inspector's room, a dental clinic room, and, if of any considerable size, should also have a nurses' room with a complete equipment for first aid. These three rooms should be combined in one suite with an outer waiting room with northern light and convenient to both the gymnasium and the necessary outside athletic field.

Where the funds of the district will permit, all high schools, at least, should have a complete standard swimming pool, with adjacent shower and locker rooms for both pupils and directors. Nothing in the school activities relating to health and to the



An attractive shop building planned as a separate unit. In this shop the plan, lighting, and equipment are identical with the best practice in the most modern factories.

helpful, of course, in the Americanization movements for children of the foreigners in industrial communities.

Of not less importance is the modern cafeteria. This was first adopted as a means of lengthening the school

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Recreation in Hospitals and Its Therapeutic Values

When All Motor Activity Means Individual Expression, Work Becomes Play, and All Play Recreative. Who Knows How Much of Our Boasted Intellectuality Is Muscular Sense?

BY R. K. ATKINSON, DIRECTOR, RECREATION IN INSTITUTIONS, RUSSELL SAGE FOUNDATION, NEW YORK CITY.

DURING the past thirty years a new attitude has arisen in regard to the legitimate use of play and recreation, and today there is general recognition of the necessity for facilities and leadership for play activities for all sorts and conditions of people. The first interest in this subject no doubt arose from a recognition of the developmental value of play for children. Progressive thinkers on educational subjects, as far back as Pestalozzi, Fröbel, and Herbert Spencer emphasized this, and for a generation or more there has been constantly increasing attention to the theoretical and provision for the practical aspects of the play movement.

In its practical aspects the play movement may be considered as one detail of the modern social progress movement which, expressing a desire for human betterment in a multitude of ways, could not fail to see the great constructive social gain in providing a place for play and suitable leadership to create and carry on play traditions which were rapidly being lost in the changed environment of our industrial civilization.

The play and recreation movement, arising from a fuller recognition of the rights and demands of childhood, soon created an appreciation of the fact that people of all ages and conditions are interested in recreation. Very soon after the beginning of the

playground movement we see the rise and growth of the movement for wider use of the school plant, for the establishment of social centers, the extension of park facilities, and the ac-

improvement have found great value in recreation for enriching and stabilizing lives which at best hold little of satisfaction or enjoyment. Programs have been developed which make use

of all sorts of recreational activities, including music, motion pictures, dancing and all sorts of dramatic entertainments, and in many cases physical activities and games in which large numbers have participated both actively and as spectators.

The more progressive institutions, however, have been increasingly unwilling to pronounce defects irremediable or to classify their cases as incurable, and have used recreation not simply to relieve monotony and to make life a little more enjoyable, but also



Particularly in the blind does the acquisition of muscular control mean increased mentality and mastery of their otherwise unexplored environment. The Pennsylvania Institution for the Instruction of the Blind has achieved through dancing the means of expression which made possible the presentation of "A Midsummer Night's Dream." This is the final dance of Titania, Oberon, Puck, and Fairies accompanied by the singing of Clowns in the background.

ceptance of the responsibility by the municipality and the state for providing and supervising legitimate leisure time activities for all of the people.

Those who are dealing with subnormal and abnormal conditions as they affect human relations were not slow to catch the spirit of the recreation movement, and institutions of all sorts have for a number of years given a definite place and an enthusiastic recognition to wholesome recreational activities. Even those institutions which accept only custodial responsibilities and which care for those for whom they can expect very little in the way of physical or mental

after some years of careful experiment are attributing to it a real therapeutic value.

Those who are taking this view think of recreation in very broad terms. They recognize the relation of physical activities to health of mind and body, and that it is largely upon physical activities that wholesome health habits are based, and through which we may secure even in highly abnormal conditions a better approximation to the normal functioning of the entire physical organism. A recent article by William H. Burnham of Clark University says: "The modern study of psychology and mental hygiene has put a tremendous em-

phasis on the significance¹ of the various forms of motor activity, and especially what we call physical exercise. Its educational, mental, and moral significance is greater than any, except perhaps a few of its most enthusiastic devotees, have imagined."

There is a real danger, however, in limiting recreation to "exercises." Those who recognize its therapeutic value include in their program a great number of artistic and esthetic interests and activities which although far removed from our older ideas of physical training are distinctly motor activities and are legitimately classed as recreational. They are demonstrating the possibility of using recreation, conceived in this broad and inclusive way, as a wholesome and practical means of stimulating, directing and training the individual in those mental and social attitudes which we are increasingly recognizing as so vital to his welfare and rehabilitation.

We must catch this larger significance of the mental and spiritual values in recreation if we are to appreciate it fully.

There is no need to point out or emphasize the large contribution which has been made in recent years to the treatment of the insane through occupational activities. The technique of the subject has been rather well developed and no institution can fairly claim to be doing its full duty by its patients unless it makes provision for occupational activities for at least a certain proportion of them. This type of work is being recognized and prescribed by medical officers in the hospitals just as definitely as is any other sort of treatment.

The success of occupational therapy is largely measured by the attitude of the workers who are responsible for its administration. The greatest success has been attained in those cases

where there has been a large recognition of its recreational content. One of the pioneers and leaders of the movement stated recently that occupational therapy cannot hope to succeed unless those who are in charge of it have some conception of the broad human aspect of their task, and cited the instance of a remarkable teacher who failed utterly in dealing with the insane because she lacked this approach.

This is the very spirit of recreation—understanding, sympathy, a sharing of life. All who deal with the insane recognize the necessity of this and those who are most interested in

in regard to work is often in need of careful analysis. There is no virtue in drudgery for any type of individual, and work readily becomes drudgery when routine activity has drawn out of it all of the soul stirring interest; but if into our work we can bring a spirit of wholesome recreative play it ceases to partake of the spirit of drudgery. Thomas Edison, who has throughout his life time been known as an industrious worker, said upon his seventieth birthday, "I have never done a day's work in my life. It has all been play." If we compare the attitude of this worker and the spirit which he has been able to bring to his

work with the lot of the average worker, who in our great industrial organization tends more and more to be a mere cog in a vast machine, we will understand something of the reason for the great increase in dementia praecox. As our civilization becomes more and more highly organized, its labor saving machines are often deadly to those who serve them.

There was a time when one's daily work provided a wholesome outlet for the emotions and gave opportunity

for self-expression. With increasingly large numbers of workers this opportunity no longer exists. As life is narrowed to the limits of a machine governed civilization, it is small wonder that mental disorders increase. If the conclusions of at least one group of the psychiatrists are based upon good reasoning the relation between mental disorders and our lack of opportunity for self-expression and emotional outlet in our daily lives is rather obvious.

Rosanoff² writes of this most prevalent type of insanity as follows: "August Hoch finds in a large percentage of his cases of dementia praecox (51-66 per cent) evidences of a peculiar mental make-up which he has termed 'shut-in personality.' This



Rehearsal of "A Midsummer Night's Dream," showing the sleeping Titania.

recreation are first to recognize that it is the spirit even more than the actual activities which count for most.

The most effective occupational workers are without question those who recognize the value not only of constructive but also of pleasurable activities, who use their entire program as a vehicle for the expression of personal interest and wholesome contact with the patient. In their regular departmental work every avenue of approach is sought, and physical activities, directed games and plays, and socialized music, as well as the conventional types of constructive work, form a very helpful part of their program.

We have but to consider the relation of work and play with normal people to understand the validity of this conception. Our entire philosophy

1. Burnham, William H.: *The Newer Aims of Physical Education and its Psychological Significance*, Am. Physical Educational Review, January, 1922.

2. Rosanoff: *Manual of Psychiatry*, 5th ed., J. Wiley & Son, New York, 1920.

make-up he defines as follows: 'Persons who do not have a natural tendency to be open and to get into contact with the environment, who are reticent, seclusive, who cannot adapt themselves to situations, who are hard to influence, often sensitive and stubborn, but the latter more in a passive than an active way. They show little interest in what goes on, often do not participate in the pleasures, cares, and pursuits of those about them; although often sensitive they do not let others know what their conflicts are; they do not unburden their minds, are shy, and have a tendency to live in a world of fancies. This is the shut-in personality.' And he adds further: 'What is, after all, the deterioration in dementia praecox if not the expression of the constitutional tendencies in their extreme form, a shutting out of the outside world, a deterioration of interests in the environment, a living in a world apart.'

If this is the underlying basis of even one type of mental disorder, and of that type which especially has been most responsive to occupational therapy, surely we should not need to spend much time in arguing for that attitude toward the treatment that would most effectively divorce it from monotony and drudgery.

Rosanoff says in reference to the treatment of dementia praecox, "An effort should be made to combat stereotypy in all its forms by suggestion and by diversion and occupation." We are surely then justified in suggesting that occupation should not become stereotyped.

White³ has the same attitude toward this subject:

The treatment (of dementia praecox) must be entirely symptomatic. A careful search should be made in each case for functional abnormalities and for the origin of mental conflicts and correction applied as far as possible.

Many cases will, of necessity, have to spend most of their lives in a hospital. It is therefore desirable to educate them as early as possible in good habits. They should be encouraged to some form of occupation, preferably

out of doors. Under the influence of hospital surroundings and farm life these cases may get on very comfortably and the deterioration process be considerably retarded.

It seems probable that one of the best methods of approach to the treatment of these cases would be by the method of reeducation through the agency of industrial training. If this is to be done intelligently, however, it is essential that the patient be not merely put to work in a haphazard way, but that a sufficiently careful analysis of the psychology of his particular condition be made so that it

pected that material results will be obtained. In the few cases that have been worked upon in this hospital along these lines the improvement has been prompt, marked and considerable. Such improvement is of course open to the criticism that it might have taken place any way in the natural course of the disease, and requires further and more elaborate studies to define its possibilities. The principle is to work out an adjustment in the environment that will bring it within the powers of adaptation of the patient.

If the treatment of these cases is a matter of working out an adjustment to the environment and if the whole modern movement for reeducation is not built upon a false foundation, we have but to study how play and play activities contribute to the education and personal adjustment of the normal child to realize how large and how little cultivated a field we have in the use of recreation with the insane.

The few institutions which are really taking this matter seriously are reporting very remarkable results. No claim should be made at this time for a positive curative value for recreation. Those who are working hardest and doing the most fundamental thinking on the subject of mental diseases are the least dogmatic in their statements, but all of those who have been experimenting with the recreational aspects of occupational activities report wholesome results in numerous cases. Fortunately, however, radical and astounding "cures" are not reported. There is always danger in excessive claims based upon insufficient data, especially when laymen are called in to assist in highly technical problems. The fact remains, however, that a number of careful and experienced hospital superintendents and clinical directors

have not hesitated to state to the writer that this is one of the most hopeful and interesting experiments which is being conducted in the entire field of psychiatry at the present time.

It is also worth while to call attention to the fact that in many instances there is such improvement that patients have comfortably and

Free to Grow

THE July issue of THE NATION'S HEALTH assumes a new external form more in keeping with the flexibility, interest, and vitality of the subject.

In point of editorial service THE NATION'S HEALTH has long enjoyed the privileges and responsibilities of leadership. The new form now achieved permits the utmost degree of expansion, and in external feature as well as intrinsic quality gives a just perspective of public health activities.

THE NATION'S HEALTH, now as always, serves the cause of preventive medicine by offering the health executive of the municipality, the industry, or the institution, a comprehensive account of health happenings everywhere.

Extend your individual contribution to health journalism by writing THE NATION'S HEALTH in regard to any work in your community of special merit or unusual urgency.

Let us have an expression of opinion from you on our new appearance. And tell the editor how the magazine may be made to serve you personally.

will appear what is the best method of approach to arouse his interests and fix his attention. It is also necessary to bear in mind the motor disturbances, more especially of the catatonie group, because here the education will have to be addressed more or less to restoring certain motor adjustments. The same principles are involved in treatment of this sort as have been long recognized in dealing with the mentally defective. The avenue of approach to the individual must first be worked out before it can be ex-

3. White, William A.: *Outlines of Psychiatry*, 7th ed., Nervous and Mental Disease Pub. Co., Washington, D. C., 1919.

Home-Making Experts Confer on Cincinnati's Housing

When the Visiting Housekeepers Told Cincinnati How the Other Half Lived, Four Hundred Thousand Dollars Were Spent to Better Conditions in Tenement Homes

By BLEECKER MARQUETTE, CINCINNATI BETTER HOUSING LEAGUE, CINCINNATI, OHIO.

THE scarcity of homes that has come about as a result of war conditions in practically all our communities has tended to focus attention on the housing problem, perhaps more than ever before. Today the problem of an adequate supply of good houses at reasonable rents is one that confronts not only the poor people of the community, but those of us in moderate circumstances. In the days preceding the War when most cities had a reasonable supply of houses in excess of the demand, owners were bidding for tenants and most of us had no great difficulty in finding what we considered satisfactory accommodations at a fair rental. Today that situation has changed materially. The average citizen is in a much better position therefore to understand what it means to the poor to have to pay high rents for the poorest quarters. As a matter of fact, the poor people have to pay more in proportion for their rooms than people of moderate means.

It would take considerable space to tell the story of what Cincinnati has tried to do to improve its housing conditions. We have realized that there are many phases of the problem and have tried to approach it from as many different angles. We have realized that the real hope of eliminating bad housing conditions lies in a comprehensive city plan for safeguarding the future building development of the community. The Better Housing League has devoted much of its attention, therefore, to constructive, forward-looking measures which seek to insure that all homes built in the city in the future shall comply with reasonable requirements for good housing

and not provide potential slums. The city has a tenement house code which gives reasonable assurance that all tenement houses constructed in the future shall be so built as to comply with good housing standards.

to persuade them to buy a house. In many cases it would place upon them a burden that they are entirely unable to carry, and not infrequently it has resulted in breaking down the health of both parents and in the loss of their equity in the property. At the same time we prefer to have these families live in a rented single or two family house rather than in a rented tenement flat.

Cincinnati needs a more modern system of housing legislation which will regulate more strictly the construction and maintenance of all types of houses used for dwelling purposes instead of tenements alone. The Better Housing League, however, has postponed its efforts in this direction pending the results of the very important work now under way of formulating a city plan. A well conceived, comprehensive city plan will take care of many of the evils that develop from a lack of regulation of the construction and location of small houses. By a system of zoning which is becoming more and more popular in our American cities, city planning protects the residence district from invasion by factories

and business buildings, and other undesirable uses, so that a man may invest his lifelong savings in a home without incurring the risk of having his property value destroyed by a varnish factory built on the adjoining lot. A zoning system will also regulate the height of buildings and the portion of the lot they may occupy in such a way as to safeguard the distance between houses and prevent the development of congestion in outlying areas of the city. It has been felt that it

Sanitation for the Submerged Classes

THE average tenement dweller in any city must kick his environment out from under him if he arises from the submerged class. The combination of dirt, confusion, noisome atmosphere, and general conditions of discouragement are cause as well as effect of inadequacy.

Community as well as individual responsibility attaches. Garden City children are in every way happier and more robust than those in less favored industrial cities near by. Improving the plumbing improves the morale of a community. Sloth is the companion of discouragement.

Cincinnati visiting housekeepers in 1922 made 8,939 visits to families. They found time as well to aid 107 immigrant families and to find homes for 260 families exhausted in their efforts to find a home.

The opinion is quite generally accepted among students of housing that the tenement house is not a satisfactory place for poor families, particularly those having children. We believe in promoting the construction of the small house for one or two families. We believe that those above the submerged class should be given an opportunity so far as it is possible to own their own homes. We realize that for those who have a difficult time making ends meet it would often be an injury rather than a benefit to try

would be wiser to wait until the city plan has been developed and a zoning system worked out before attempting a complete revision of our housing regulations.

Meanwhile the League has done all in its power to keep in touch with the type of one and two-family houses constructed in the city to see that the growth is along proper lines, to encourage the development of well constructed small houses and to discourage the construction of tenements. Due partly to the efforts of the League, but probably much more to economic factors, the new tenement house has not developed to any extent in Cincinnati. During the past five years there have been so few new tenements built that they are practically a negligible quantity.

Shortage in Cincinnati

A careful investigation of the trend of home building since 1915 shows that the city has a shortage of more than four thousand houses. It is comparatively simple to estimate the shortage because of the very stable growth of Cincinnati's population. It has approximated one per cent a year for the past ten years. We know the number of houses built in a normal year and we also know how far we fell short of this number during the lean building years of the War, in one of which, for instance, there were only 106 houses built. There can be no question but that it will take some time to build enough houses to meet the demand. Despite the fact that the year 1922 was a banner year in home building, a total of nearly nineteen hundred homes having been constructed, so many dwellings were torn down to make room for industrial and business buildings that we were practically no better off at the end of 1922 than we were at the beginning of the year.

Cincinnati still has a serious problem in its existing tenement houses. Yet we may look back upon the past in comparison with the present with

some degree of satisfaction. While eight or ten years ago Cincinnati was classed among the very badly housed cities, so much has been done to eliminate the old pest spots and the more

much better than vaults, whereas today that number has been reduced to about five hundred, and orders have been issued for the removal of those remaining. Each year many dilapidated, old tenements have been condemned. They would have been condemned faster had it not been for the shortage that has accrued since 1917. During the past year the housing bureau, as a result of its orders, caused the expenditure of some \$400,000 in improvements in the existing tenement houses.

Visiting Housekeepers

The housing problem is not only one of bad structural conditions in buildings but is also a problem of maintenance on the part of tenants. One of the factors that has stood in the

way of housing betterment in every community has been the fact that frequently careless, ignorant and slothful tenants will so neglect or abuse the property they live in that the owner is discouraged from making substantial repairs. The carelessness of the few has reacted to the detriment of the many. Because of their experience with occasional bad tenants, owners have tended to oppose all efforts toward housing betterment. The Better Housing League has recognized this as a very real factor and has established a system of visiting housekeepers as the most practical

method that we know of for instructing tenants and gaining the cooperation of owners. We have six visiting housekeepers, trained women of mature age, endowed with practical common sense and experienced in home making, who are spending their entire time every day in the year going from home to home in the

most congested parts of the city, bringing pressure to bear upon negligent and slothful tenants and bringing kindly help and advice on housekeeping problems to discouraged mothers. They go into the home as advisers and friends to teach tenants how to make the best

(Continued on Page 422)



Living-room of the Housekeeping Center, a flat maintained to instruct mothers in good housekeeping.

outstanding of our housing evils that we have moved forward into the rank of cities that are active in housing betterment.

The enforcement of the city's housing regulations is divided between the housing bureau of the building department, which has charge of structural conditions, and the sanitary division of the health department, which is responsible for the sanitary conditions. There has been a most excellent spirit of cooperation between these departments and the Better Housing League. The League has done all in its power to build up



This view of the hillside looking toward Rookwood Pottery, formerly a neglected waste, is now planted with vegetables and grass, due to the efforts of the Better Housing League visiting housekeeper.

support for them and to give them that constant encouragement which is necessary for city officials charged with so discouraging a task as enforcing housing legislation. The amount of work that has been done is commendable. Ten years ago, for instance, Cincinnati had thousands of old catch-basin toilets which are not

Insanitary School Surroundings Are the Rule

Author Holds That Life Span Has Increased Because Urban Populations Have Learned to Demand Sanitation

BY W. R. CONARD, CONARD & BUZBY, CONSULTANTS AND ENGINEERS, BURLINGTON, N. J.

SOMEWHERE in print the author recently saw the statement that the average span of a human life in the United States today is 56 years as against an average of thirty-five years fifty years ago. This means that if we can go on finding means of preserving the health and lengthening life in the same proportion for the next fifty years, that the average of human life in America will exceed the allotted three score years and ten. How are we to account for this, is a natural question to ask, and the answer in part (for the purpose of this short article) is to be found in the fact that within the time spoken of the majority of our population has changed from suburban to urban and that this urban population tending to spread itself over larger areas than heretofore, is demanding the most modern in the way of sanitary equipment devices and conveniences in their dwelling places.

Some few years ago, the average prominent citizen in speaking of his childhood almost always referred to the little Red School House as his first direct contact with education. Now, while practically all of us get pleasure from harking back to our childhood days, how many there are who appear to forget that with the little Red School House they were usually crowded in one large room poorly ventilated without regard to the volume of air space that should be allotted each pupil, and when nature functioned that it was necessary to go out either in the cold of winter or the heat and disagreeableness of the warmer weather. How many there are who forget that when thirst demanded satisfaction either one had to go to the water bucket in the corner with its tin dipper from which all drank or else to the yard pump often with the well in fairly close proximity to the toilets, and liable to contamination of the water from those same toilets, and without any realization on their part, and practically none on the part of either the teachers or the school trustees that childhood is the most susceptible period of human life

to intestinal troubles in their various forms.

Even today as is evidenced by the illustrations accompanying this article, there appears to be some lack of appreciation of the possibilities of



Township School outhouses about forty feet from school building. The pump is inside the school building.

trouble due to continuing the use of the old fashioned privy and the shallow well pump in the school yard.

Healthfulness is the key-stone which supports the arch of the span of human life, and without this key-stone the arch is likely to collapse; therefore our school authorities, and those who design and build school houses must become thoroughly awakened to the situation, and see to it that not only the new schools going up are equipped with the proper sanitary arrangements, but they should also get busy and arrange the older buildings with the right sanitary equipment and conveniences.

Referring to the illustrations accompanying this, they were taken at random and are typical of our Ameri-

can public school in the suburban and rural sections. These observations of conditions were made in a section in one of our eastern states, which has been settled many years, in fact in some instances the communities had been well established even before the Revolutionary War, and probably the school authorities would be highly insulted if charged with being old fashioned or behind the times, or with not having due appreciation of the value of our children, or with not endeavoring to see to it that they have everything for helping them to grow up to healthy manhood and womanhood, yet here are the conditions:

Twenty-five schools visited or observed of which twenty-one had the old fashioned pump and shallow well for water for drinking. Nineteen had within fifty feet of the pump the old fashioned privy. One had what is usually termed "city" water supplies and the old fashioned privy, and two had well constructed water supplies and indoor toilets.

What a sad commentary on intelligent men and women school authorities and the architects whom presumably they employed to design and advise with them on the at least comparatively new building, which all of those illustrated are.

Where one school is so situated that it cannot have modern sanitary conveniences there are at least forty-nine that are, and what an easy thing it is to have a deep well, tapping a water bearing stratum, and to install a pump and tank to supply water for both drinking and sanitary purposes and then provide the proper indoor closets with a small disposal plant so situated that it will carry away the sewage and dispose of it in such a way that it is neither unhealthful or offensive to the school or surrounding property.

The value of human life cannot be measured in dollars and cents, and what an asset to any community either urban, suburban or rural is a general condition of good health among its residents. Therefore how important it is that care be exercised



Township School outhouses about seventy-five feet from pump, fifty feet from new building, and fifteen feet from old building which is still being used for school purposes.



Borough School outhouses in good condition and about fifty feet from building. The pump house is close to the school building and seventy-five feet from privies.

to see that all safeguards are secured for our schools, especially with regard to the water and sanitary arrangements.

Suppose we see how much it will cost to have the right arrangements for water and sewage disposal for the country school. The school board doesn't have the money to lay out in a lump and does not want to raise it by tax all in one year, but can borrow the necessary amount and can pay it back on long time notes. To provide modern water supply, plumbing and sewage disposal will cost about ten dollars per pupil for the ordinary school. To pay this off in ten years would cost the first year \$1.60 per pupil, and this would diminish year by year until the tenth year when it would be \$1.06 per pupil, and thereafter it might cost fifty cents per year per pupil for repairs and maintenance, which is very little if any more than it costs with the crude and insanitary conditions found in many cases. Surely if viewed in the light of an insurance tax that is not much, being on an average five cents per pupil per month for the school year.

Few indeed are the schools so situated that it would be impossible to install a driven well, either shallow or deep, from which a good potable water might be obtained. In connection with the well a hot air, gasoline or kerosene driven engine and pump and in many instances an electric motor and pump together with modern plumbing and pressure tank could be installed. Few there are of these same schools that are so situated that they could not have the toilet indoors, and connected to a modern system of sewage disposal either by discharging into a cess pool, digesting tank and chamber and from there into underground drains usually known as French Drains, or else into the more modern, and better settling tank and sludge

bed with the liquids flowing away either to French drains or other similar means of filtering and disposing of the liquids.

What better piece of work could be done for our American childhood than to stage an energetic campaign to bring to the attention of the proper authorities and to urge them to take the proper correctional measures for remedying the matter and putting all of our schools throughout this broad land of ours, which are not so arranged, on a proper sanitary and health basis?

Common But Unrecognized Dangers of Furuncles

Physicians call them "furuncles"; the English elegantly call them "spots"; we Americans with a genuine love for words of simple roots call them "pimples." The Anglo-Saxon was "piplan," a blister, but the word, not illogically, became confused with the French "pimper," to spruce, and its more vulgar contraction. Whatever we may call them, these minute pustules constitute a very common type of infection, one which not only mars many a complexion but may even be the forerunner of a more serious condition. Any chronic suppurative condition no matter how small does a certain amount of physical harm. Their presence may be a sign of lowered bodily resistance contributed to by a faulty dietary and lack of thorough cleanliness. They may indicate some really serious condition, but usually they do not.

The very frequency of furunculosis and the fact that pimples usually subside when opened, has led to the dangerous custom of squeezing, pressing, pricking, or puncturing them. No inflammatory area should ever be subjected to rough manipulation. This is apt to increase the zone of infection and in situations having a rich blood-supply like the face and lips there is

always the risk that the pus-producing organisms may be thus forced into the venous circulation and carried by the blood-stream to some other point in the body there to do really serious mischief. Every wound is always followed by the deposition of scar tissue and naturally, the larger the wound and the greater the amount of tissue destroyed, the bigger will be the size of the scar. It is the tendency of all scars to contract. If they are upon the face, ugly looking blemishes may be thus produced.

It should always be the rule to treat these apparently innocent minute boils as dangerous infections. They should not be violently compressed and opened with any sharp instrument at hand regardless of its cleanliness. They should be put at rest under some bland ointment or if lying deeply in the skin, evacuation may be hastened by the application of small, hot compresses. They should not be punctured until they are "ripe" and then only with a sterile instrument and with the minimum amount of damage to the skin. Discharge of the pus should never be accomplished by strong pressure. Gentleness must characterize all these manipulations.

These are simple teachings of which the layman stands greatly in need and, since public health workers are interested in any condition which handicaps or threatens mankind, these simple precautions should be made known to the public.

The Philippine Island Social Hygiene Association has applied for a charter. The educational and religious leaders of Manila formed this organization to study and better social hygiene conditions in the islands. Activities already under way include a survey of vice conditions in Manila and of the sex educational literature used in the normal schools and colleges.

Protecting the Belgium Worker's Health

Both Industry and the State Have Taken Bold Initiatives in Health Service as the Best Means of Raising the Health Level of the People

BY DR. D. GLIBERT, DIRECTOR OF MEDICAL SERVICE OF THE MINISTRY OF LABOR, BRUSSELS, BELGIUM.

BEFORE the war, which upset nearly all of our institutions, prosperous Belgium was in possession of important medical and hygienic machinery, functioning for the special protection of its working people.

This country, as well as other industrial countries, had for a long time been endowed with a certain number of medical and allied institutions founded exclusively by the philanthropic heads of great firms. Many years ago the Belgian government took efficient steps toward the protection of the workers' health, while at the same time, working people themselves began through their unions to combat the disastrous consequences of disease. Such foresight is quite natural for a densely populated nation which has since ancient times been a field for the most intense industrial activity. In addition the geographical position of Belgium, which makes it the crossroad of Europe and a place of contact for the great neighboring nations, with which it maintains closest relations, favored Belgium in turning to its own advantage the progress made by these neighboring countries.

While Belgium was little by little improving its methods and increasing its sanitary institutions, confident in continued peace and industrial prosperity, it awoke suddenly to find itself under a foreign yoke, its industries thoroughly paralyzed and wholly ruined.

When the storm was over, although it was cruelly wounded, the Belgian nation promptly recovered its activity and, like the diligent ant whose work has been destroyed by the foot of a passer-by, it took up again its labor with patience and tenacity. It wanted not only to restore the ruins of its old

institutions, but also to improve and increase its economical and social status in order to meet the distress of its industrious citizens.

Present Trends

It is proposed to show in this note

tion, any measure they deemed useful for the protection of the workers' health. This Act, still in force, may be considered as the basis upon which the social legislation of today has been built.

Independent of this Act, an Imperial Decree, dated October 15, of that same year, 1810, constitutes the first step in regulating the establishments not subject to the Act concerning mines, but presenting some dangers for the neighborhood. This decree, concerning the "factories reputed dangerous, unhealthy or troublesome," has been revised several times. The last revision was in 1863. It has kept its legal force up to the present date, and is now being re-examined again.

It is necessary to remark that most of the more or less important industrial establishments are subject to one or the other of these regulations. It is equally necessary to add that we must come to the end of the last century to see legal measures of protection extended to all industrial and commercial establishments.

In 1886, some insurrections, some important strikes and riots took place during which we had to deplore the sacking and the

burning up of a few factories. In the presence of such serious signs of deep dissatisfaction, the Government, after conducting a great national survey on the working people's condition, took a definite step in official intervention by the promulgation of an Act regulating the employment of women and children (Act of 1889). This was our first great social law.

From then on that tendency of intervention increased till we came to the most recent Act, that of June 14, 1921, limiting the work day of the

All Cooperate in the Interest of Health

PRIVATE philanthropy, which always moves more swiftly to relieve than state or other agencies, long ago provided special medical and allied institutional aid for ailing work people in Belgium.

State medical and hygienic machinery, developing parallel with activities of the peoples themselves through workers' unions, has promoted an intensive industrial service that is well calculated to restore the level of the working people's health in this and future generations.

Sanitary service in industry includes organization in 903 industrial concerns employing 523 doctors, a part of whose service is the continuous health supervision of 23,481 young people. Moreover, health is promoted both by opportunity and necessity, for the code demands penalties from both workmen and employer for its transgression.

what the war destroyed and the results of Belgium's activity in restoring the same, as well as the aim towards which we are striving.

In 1810 when Belgium was united to France, we find legislation protecting in a certain measure, the health of special classes of working people. The Act of 1810, relating to mines and metallurgy, granted to the "mine officers" extended powers according to which they could easily impose, on the industrial enterprises within the limits of their jurisdic-

adult male to eight consecutive hours.

It is impossible to give, in such a short article, a complete resumé of all legislation concerning the protection of working people, since the present work code fills a volume of more than four hundred pages. It will be necessary, therefore, to limit the subject and merely mention some of the regulations of direct concern to the medical hygienist.

These depend largely on the application, by means of special orders, of provisions made by virtue of the Act of 1810 on mines, or the royal decree of 1863 already mentioned, or else, an Act of much larger scope (the Act of July 2, 1899) called "Safety and Health of Laborers' Act."

Thanks to these legal provisions and some particular laws, such as the Workmen's Compensation Act of December 24, 1903, and the coordinated laws on public instruction, and on child labor, the machinery for the protection of the workers' health requires the following prophylactic measures:

The age required for admission to work is actually fourteen, but permission is granted to youths of thirteen who can show a certificate of completed primary studies. This is a general rule; it applies both to girls and boys and to all industries.

In addition a great many reservations are made prohibiting the employment of young persons, said to be "law protected people" (before ages varying from fourteen to eighteen for young men, and between fourteen and twenty-one for girls) in certain work considered too hard or unwholesome for them.

Legislation goes still further; it sometimes prohibits the employment of women of any age, in certain industries such as coal mining, or allows the employment of "Law protected people" or women of any age, for night work, only under special circumstances.

Industrial Sanitation

Industrial or commercial undertakings of any kind are subject to certain hygienic regulations of which the main provisions are as follows:

Under ordinary conditions workrooms must supply to each worker a volume of air not less than ten cubic meters. Workrooms must be at least 2.50 m. in height. The air supply shall not be less than thirty cubic meters per person per hour; and, when work is especially unhealthful, this minimum is doubled.

The work and places must also be

suitably warmed and, in summer, protected against high temperatures.

Workers must have at their disposal good drinking water and the water used in the workshops either for pulverization or for sprinkling must not be polluted.

There are also more special regulations concerning other causes of unhealthiness: ejection of steam, gases, dusts; cleanliness of rooms, removal of wastes and manufactured products of objectionable kinds, lighting of rooms, etc.

As to the personal hygiene of the worker, general rules determine the number of toilets and urinals which have to be maintained; they also prescribe that, in the place where work of a particularly unhealthful character is being done, special work clothes will be furnished as well as cloak rooms and washstands.

Finally, it is forbidden to eat or bring food into work places used for the manipulation of toxic materials and the workers are also prohibited from bringing alcoholic beverages onto the company grounds.

Responsibility Mutual

An important thing to be noted regarding Belgian regulations is, that they provide punishment for the workmen as well as for the employers transgressing them.

Apart from these general measures, a series of more detailed ones are applicable to specially hazardous industries; for instance: the manufacture of lead compounds; preparation of raw materials for the hat trade; the use of white lead in earthenware factories, etc.

From a medical point of view, aside from prescribed sanitary measures, these special regulations order periodical clinical examinations of the personnel either each year, each half, or each quarter of a year. These examinations are now made by medical officers of the State.

In the same way, special sanitary regulations provide for protection against certain infectious or parasitic diseases: compulsory disinfection of horse hair used in the making of brushes or mattresses; vaccination and periodical revaccination of people handling rags; examination of miners exposed of ankylostomiasis, etc.

Among the other special laws, protecting the working people's health, should be mentioned, besides the prohibition of work to women during the four weeks following delivery, the Act ratifying the Convention of Berne (September, 1906) which forbids the

employment of women of any age at night work.

As to the compensation for injury from industrial accidents, the plan of the present law is as follows:

What is required, is not compulsory insurance, but compulsory compensation. At a matter of fact, nearly all the manufacturers are insured. Those who are not, have to bear personally the consequences of accidents occurring on their premises; moreover, they contribute, by paying a special tax, to the up-keep of a state "Guaranty Fund" which is intended to serve to indemnify the victims in case the employer, who is not insured, is insolvent. Only contracts with societies approved by the State, are considered valid, and, to be officially approved certain conditions of solvency must be realized and these conditions are subject to a permanent control. Hence it is seen that the injured workman is always certain to obtain his compensation.

The idea of the lump-indemnity has also been adopted, i. e., nobody has to take into account the question of personal responsibility; and in consequence, the workman receives his compensation even when there has been serious carelessness on his part. Neither does the preceding state of health of the victim enter into account, so that a one-eyed man who accidentally lost the sight of his good eye, would receive an indemnity for total blindness, just as if he had really lost, by accident, the sight of both eyes. On the other hand, the compensation is not complete, it amounts to only fifty per cent of the loss suffered.

The cost of treatment is paid by the employer, who can choose one of these two methods: he may either organize a medical service or have it organized by an insurance company which acts in his place; in which case, the workman is not free to choose his doctor, or if the employer does not adopt this method, the injured worker is allowed to choose the surgeon he prefers, but a royal decree fixes the maximum rate of the expense to which the employer is liable.

New Legal Provisions

All the above was existing long before the war and has again been enforced since the evacuation of the country by the enemy. But, since that time, important improvements have been made in certain of our social laws. The principal new provisions are the following:

(1) A law has been promulgated limiting the work day of adults to a

(Continued on Page 426)

Opium and Its Control Through the League of Nations*

The Representations of the Advisory Commission in Traffic on Opium Embody the General Principles for the Control of Dangerous Drugs

By GERTRUDE SEYMOUR, NEW YORK CITY.

IT IS a wise officer who knows whether a consignment marked "Lamps" is really lamps or several hundred pounds of morphine; whether a package labeled "Cocoa Powder" contains the wherewithal for that grateful and comforting beverage or only "dope." And when is a registered letter only that, and nothing more? When does it hide its fraction of the six hundred pounds or more constituting the year's output of one astute firm? Perhaps one should say, the former output, thanks to agencies and methods here to be described.

All this is not mere allusion to catchy news items, but to historical facts, actual events in the recent development of a business-like control of traffic in opium and other narcotic drugs. This has been recognized as an international problem for nearly a quarter of a century. The pioneer meeting in Shanghai, 1909, drew together nations which had been engaged in efforts more or less successful within their own territories to restrict drug trade to its legitimate sphere. Their recognition of interdependence in this matter expressed by the Shanghai meeting broadened into a definite agreement on the subject at the three Hague Opium Conferences of 1912, 1913, and 1914; and the first International Opium Convention assured to measures for narcotic drug control the status of an international obligation.

Then the war. And after war the

peace treaties, each providing that ratification of the International Opium Convention should be implied with the ratification of the treaty itself. And the new League of Nations, whose members agreed to intrust to

lands Government to the Council of the League of Nations, prepared in 1920 by M. Van Swinderen, Netherlands Minister to London, and, it will be recalled, the presiding officer of the Shanghai meeting, as well as tactful

guide in questions of control of opium on other occasions. M. Van Swinderen naturally took the initiative in bringing the opium question to the Agenda of the First Assembly, since the Hague Convention had committed to the Netherlands certain responsibilities connected with its enforcement. With this government ratifications of the convention were to be deposited; official communications between signatory states regarding opium should go through the medium of the Netherlands government; should disputes arise in course of any enforcement of the convention, this government should be the mediator, with authority to call a special conference at The Hague if the matter could not otherwise be adjusted. The memorandum reviews also the new alignment of states resulting from the new agreements. Between the year 1912 and 1914, forty-two states had signed the International Opium Convention, but only nineteen had ratified it. The protocol of 1914—permitting enforcement by any signatory nation at once

without awaiting final ratification of the convention—had been accepted by only six nations, when war postponed further activity in this field. But now, instead of the simple classification of signatories or non-signatories, four groups of states must be considered: (1) States, members of the League of Nations, adherents to the Opium Convention either by their own earlier ratification or by the ratification of

Opium Trade a Profitable Occupation

DRUG addiction as a hold-over from acute disease conditions that require anodynes is the least part of the problem. Its enormous extent is rather the logical outcome of the promotion of a highly profitable trade which will flourish at the expense of public health, stability, and morals as long as it continues to pay upscrupulous dealers the coveted profit.

The agreement reached at the recent session of the Opium Advisory Commission of the League of Nations proposes negotiations between the countries in which morphin, heroin, and cocaine and their respective salts are manufactured, and those in which raw opium and coca leaf are produced.

The world is now charted as to sources of raw materials, channels of exchange, and points of reshipment and manufacture. Control henceforth depends upon properly coordinated international effort.

its supervision the traffic in opium "and other dangerous drugs, subject to and in accordance with the provisions of international conventions existing or hereafter to be agreed upon."

The gap between the old procedure and the new is bridged by a document of permanent significance in the history of the control of opium. This is a memorandum from the Nether-

*The sources of information utilized in this article are exclusively the publications of the League of Nations: Official Journal, Records of Assembly meetings, minutes of committee meetings, received through the courtesy of Dame Rachel Crowley; and special notes from the Information Section, by the courtesy of Mr. Arthur Sweetser.

one of the peace treaties. (2) States signatory to the Opium Convention but not yet members of the League; (3) Three states, members of the League, who have not yet signed the actual instrument of the convention, and (4) six states standing outside of both Convention and League.

Affirming a belief that in these changed circumstances the Secretariat of the League of Nations was the "most suitable center for all international action," the Netherlands government urged that at the coming assembly the opium question should be fully considered by a committee representing all nations most concerned, and a plan of work formulated by which the League might best carry out the provisions of the International Opium Convention. The Netherlands itself stood ready to cooperate in any way with the League.

Then in the First Assembly of the League of Nations, December, 1920, deliberations on the Memorandum both in the "Fifth Committee" and in full Assembly, led to the adoption of a resolution covering the following points:

The Secretariat shall collect information as to arrangements in different countries for carrying out the provision of the International Opium Convention, and as to production, distribution and consumption.

An Advisory Committee shall be appointed representing the countries most affected by the opium problem, and reporting annually on the observance of the Convention.

The Netherlands government shall invite the adherence of states not yet signatory to the Opium Convention.

In the discussions at this First Assembly the most radical note was sounded by the Chinese delegate, who urged that control of opium should reach beyond distribution or even manufacture, and should strike at actual cultivation of poppy plants. He was not unaware that during the distractions of war, foreign and at home, there had revived in China cultivation of the forbidden plant. But he indicated the special measures even now being taken to check the recrudescence and believed the situation only temporary. China had sacrificed more than one hundred million francs of revenue from cultivation of the poppy, had bought and publicly burned ten million dollars worth of smuggled opium; she would not now fail in her undertaking. Public opinion was strong against opium in the younger generation. China's main problem was the existing system of foreign concessions and consular services, it was gently but definitely indicated. A remarkable spirit of frankness and

conciliation pervaded the discussions. England was aware of excessive amounts shipped to the Far East and had called attention of her Foreign Office to the matter. Japan offered to investigate strictly the contraband trade in morphin centering in her country. And willing cooperation to attain better conditions brought the request from Portugal for membership on the new committee soon to be formed, and Siam welcomed this acceleration of efforts in the practical control of opium which she had already attempted. There was not an opposing word; only recognition anew



Underwood & Underwood
An automobile accidentally bumped into a barrel of "fish" recently which was just being unloaded at a New York pier and the crash revealed a sealed tin container, stuffed with morphin. The entire consignment was found on examination to contain illicit narcotic drugs valued at three-fourths of a million dollars. The picture shows a customs inspector with \$750,000 worth of drugs.

of the grave situation affecting equally nations of East and of West.

The new Advisory Committee on Opium was created at the meeting of the League Council in February, 1921. Recalling instructions of the first assembly that this Committee should include representatives of all countries most affected by the problem, the following nations were invited to make appointments to its membership: Great Britain, France, India, China, Japan, Netherlands, Portugal, and Siam. Later, a representative from Germany was included. Still later an unofficial observer came from the United States.

As the personnel of this Committee has changed but slightly, the list of January, 1923, is given here. At first, China was represented by Mr. Wellington Koo. The American representative sat first with the Committee at its January session. The Serb-

Croat-Slovene State, although invited to send a representative to this Committee, has not yet done so.

Government Representatives are as follows: Sir Malcolm Delevingne, British Empire; Mr. Chao Hsin-Chu, China; M. Kahn (substitute, M. Bourgeois), France; Dr. Anselmino, Germany; Mr. J. Campbell, India; His Excellency, Mr. A. Ariyoshi, Japan; Mr. van Wetsum, Netherlands; His Excellency Mr. Ferreira, Portugal; His Excellency Prince Charoon, Siam, and Dr. Rupert Blue, U. S. A.

Assessors are: M. Henri Brenier, France; Sir John Jordon, Britain, and Mrs. Hamilton Wright, America. Dame Rachel Crowley is secretary. The Opium Section at first created in the Secretariat to deal with the mass of headquarters work, was last year merged with the existing Social Section.

This Advisory Committee on the Traffic in Opium and other Dangerous Drugs—to use its full title—has held four meetings. No attempt is made here to trace the chronological development of its work in detail from the first gathering in of available information regarding arrangements by signatory nations for executing the Opium Convention, to the administrative plan now approaching completion and to be submitted to the Fourth Assembly, in September of this year. But certain facts in the development of this plan demand special mention: The questionnaire; two special inquiries into legitimate requirements of drugs mentioned in the convention and of others of similar effect and into legitimate requirements of raw opium; the certificate system; and ever and always, the call to adherence to the Opium Convention, for the success of any plan of control depends upon its adoption by all nations.

This document is in five sections, following the chapters of the convention of 1912 on raw opium; prepared opium; medicinal opium, morphin and cocaine; relations with China; and other information. Copies of laws and regulations as well as a summary of these, statistics of amounts grown, manufactured, and distributed, accounts of administrative method, how smuggling is controlled, and similar facts, are asked in each section; and the final section inquires whether the study of Indian hemp, recommended by the convention, has yet been made and, if so, with what results, and how far the provisions of the Convention are applied to coca leaves, ecgonin, and the derivatives of drugs definitely specified, to the alkaloids of opium, or

to other substances "liable to similar abuse and productive of like ill effects."

The Summary of replies to this questionnaire, issued in June, 1922, is a startling document. For the first time there are assembled authoritative official data regarding the extent of the problem, and official statements as to what is—and what is not—being done to meet it. The tabulations cover first, the production of raw opium; second, imports and exports of raw opium; consumption, manufacture, and export of prepared opium; of medicinal opium; morphin, and derivatives; and of cocaine. That these returns as a whole were inadequate as a basis for action was inevitable. Because of war conditions, legislation was too recent actually to have proved its effectiveness. Few countries had any provisions for statistical records of manufacture, import, export, or distribution of the drugs in question, or any others. But the significance of the document is, for the interested reader, its revelation of the stupendous magnitude of the task undertaken, and its complexity. There are bald figures indicating the acreage under poppy cultivation—Japan's 929 acres; Serbia's 5,000 to 8,000 hectares, or 15,000 to 20,000 acres; India's 143,000 acres in 1920 for the 363,000 acres of a decade ago. No reply came from Turkey nor from Persia in time for printing; Turkey's pre-war export averaged about 432,000 kilos, or over 950,000 pounds. An increased production in China is attributed to the disturbed condition of the country, military demands, and smuggled opium and morphin from foreign countries into China. New sources of supply seem possible in Austria and Hungary. New trade is evident as, for instance, that recorded in exports from the United States to Formosa, amounting to over 12,000 kilos in 1919, and to 90,000 kilos in 1920.

Further—if the Summary startles by its revelation of the greatness of the task, it also reassures by its indications of active determination and honest cooperation on the part of many nations. Despite the distractions of the five years following the Opium Convention, nations signatory have not been neglectful of their ob-

erving special points of inquiry, and taking the first step in actual administrative control. These recommendations were after consideration approved by the Council, and are here given with their serial numbers since in documents they are frequently referred to as the "third recommendation," or the "seventh." The recom-

mendations of 1921 follow:

(1) That members of the League sign and ratify the opium convention as promptly as possible if they have not already done so.

(2) That the Netherlands Government continue its work of securing ratification by States not members of the League.

(3) That the Health Committee of the League or a similar organization be asked to undertake an inquiry to determine the average requirements of the drugs specified in Chapter III of the International Opium Convention for medical and other legitimate purposes in different countries.

(4) That a system of import certificates be adopted by all parties to the Convention. The procedure involved would be as follows:

"Every application for the export to an importer of a supply of any of the substances to which the Convention applies, shall be accompanied by a certificate from the Government of the importing country that the import of the consignment in question is approved by that Government and is required for legitimate purposes.

In the case of drugs to which Chapter III of the Convention applies, the certificate shall state specifically that they are required solely for medical or scientific purposes."

(5) That effective steps be taken to prevent contraband trade with China. (Recommendation 6 was postponed.)

(7) That the Committee be authorized to consider the possibility of an inquiry into the average requirements of raw and prepared opium (specified in Chapters I and II of the Convention) for medicinal and scientific purposes in different countries. The motive for this recommendation was the "world wide interest in the attitude of the League and the general desire to reduce and restrict the production of opium to strictly medicinal and scientific purposes."

(Continued on Page 490)



A collection of heroin, morphin, opium, cocaine, opium pipes, hypodermic needles, etc., valued at \$2,500,000, which represents seizures made by the narcotic squad of the New York police department during the past year in a series of 2,471 raids.

Wide World Photo.

ligations. Norway's new drug laws date from 1913; Denmark's, from 1914. In 1916 France supplemented the older laws of 1845 and 1896 by a new decree. Belgium's law bears the date of October 24, 1919. Italy, aroused by the marked increase of illicit traffic in opium, passed new regulations in 1920, also Latvia. And Great Britain's Dangerous Drugs Act carries this date, a revision of all earlier legislation, in uniformity as far as possible with all parts of the Empire. Austria, Germany, Japan, Siam, date new laws in 1921. And in many cases it is specified that provision is made for record keeping that in the future will make available such statistics as were asked for now, but could not be supplied.

Two Special Inquiries

Since it was evident that replies to the questionnaire could not reach the Secretariat in time to be tabulated for the Second Assembly, 1921, the committee decided to offer as its annual report, several recommendations cov-

Philadelphia's Nutrition Work With Tuberculous Children

Camp Happy at Torresdale Pools Voluntary and Municipal Resources in Child Care. Children Under Weight But Otherwise Well Are Given a Chance to Come Back

By ELIZABETH CRISWELL, HEALTH COUNCIL AND TUBERCULOSIS COMMITTEE, PHILADELPHIA, PA.

CAMP HAPPY at Torresdale, just at the edge of Philadelphia, is a proof of what can be accomplished by pooling the resources of a volunteer agency and those of a municipality. When the Philadelphia Health Council and Tuberculosis Committee started the nutrition work for the underweight children in the spring of 1920, the need of a country place where the child could be under direct control of expert supervision was apparent. A number of children failed to make adequate gains in weight even though they were "free to gain." The discouraging fact was that lack of home control, faulty food, and bad habits were retarding the physical growth of the child.

There was little money in the treasury of the Health Council, but this did not daunt the intrepid fighters for the health of the children. An unused building was found at Brown's Farms, a part of the city property. This building had been the coach house when the Alexander Brown estate was the show place of Philadelphia society in 1880. The city, however, had remodeled the building and had used it for a dormitory for indigents for a short time so it was equipped with bathing facilities, toilets, and a large sun parlor. The department of welfare of the city was approached and interested in the problem, and the use of this building was offered to the Health Council free of charge. Further cooperation was given by the city supplying the

food already cooked from a kitchen which prepared the food for the other occupants of the estate—foundling children and indigents who farmed the grounds. The Health Council agreed to share the cost of the food; and to provide the personnel for conducting the camp.

In this improvised vacation home 161 children spent six weeks and all

mess hall—one side being reserved for girls and the other side for boys—commodious bath houses and toilets were erected. The water was supplied from a city main. A porch at the end of each bath house is provided with a line of faucets—an arrangement that sped up the tooth-brush drill in the morning.

A ten-acre garden, taken care of by the indigents, supplies fresh vegetables in abundance.

The children admitted to Camp Happy are 10 per cent or more underweight but are well children. Here they are given a chance to attain average weight under the most favorable conditions. The camp opens the first of July and closes the Saturday before Labor Day; and many of the children have the opportunity of spending

the entire summer in the open air.

The camp is operated under four divisions: (1) Administrative, consisting of supervisor, assistant supervisor, recreation supervisor and office staff; medical, comprised of resident physician, day nurse, and night nurse; counselors as follows, Captain of Boys' Counselors, Captain of Girls' Counselors, Captain of Colored Counselors, Twenty counselors—four of them colored; and commissary department including steward, chef, assistant chef, scullery man and maids.

The counselors are for the most part college men and women who are working on a volunteer basis. The supervisor of the camp is a trained nutrition worker and the physician is



Camp Happy is a tent colony covering twenty-five acres and accommodating five hundred children daily. Here underweight children, and those predisposed to tuberculosis, are afforded ideal conditions under which to overcome their handicap.

returned to the city in September, 1920, better equipped to fight the diseases of winter.

This was the beginning of Camp Happy which has now grown to a tent colony covering twenty-five acres with accommodations for five hundred children daily. Mr. Ernest L. Tustin, then director of the department of public welfare, was much interested in the general improvement in the health of the children even under unfavorable conditions and offered the Health Council the use of an open space just across the road from the building which was first used. The city built a large mess hall with a well equipped kitchen attached. In the large open space on each side of the



Abundant opportunity for play, some occupational therapy interspersed with rest, with reading and story telling make the summer at Camp Happy ideal for the children.

especially trained in children's work. In the nutrition work a large number of colored children were found to be underweight and the benefits of the camp are offered to them also. The colored counselors are in charge of a colored woman, who is a trained nurse and social worker.

The daily schedule follows nutritional principles:

a. m.	
7:00	Rising bell.
7:30	Showers and dressing.
8:00	Breakfast.
9:00	Tent inspection.
9:30 10:30	Directed play.
10:30	Lunch—milk.
11:00-12:00	Rest.
p. m.	
12:00	Dinner.
1:00-3:00	Play.
3:00	Lunch—milk.
3:30-4:30	Rest.
4:30-5:30	Occupational work.
5:30	Supper.
6:30-8:00	Play, story telling, moving pictures, dramatics.
8:00	Preparation for retiring.
8:30	Taps.

The schedule relative to play is more or less elastic as twice a week swimming in the Delaware river is substituted either in the forenoon or in the afternoon according to tidal conditions. Generous and interested citizens occasionally provide treats in the way of moving pictures and automobile rides. Rainy days require adjustment to include occupational work, reading and story telling. But rest and milk drinking, the nutritional factors so essential to physical growth, are never eliminated.

A complete record is kept of the child's physical life while at camp. Each child is weighed on his entrance and weekly weighing keeps an accurate check on the rate of gain. No

child is admitted without a complete physical examination and all correctable physical defects must be taken care of before entrance.

During the summer of 1922, 867 children spent the greater part of the summer in Camp Happy and gained a total of 1,724.5 pounds. One boy took back twelve good health pounds as additional equipment for the fight of life.

The Essential Qualifications of Public School Nurse

The school nurse, says the U. S. Public Health Service, should have good health, sound ancestry, tactful and equable temperament, and love for and understanding of children. In addition to her regular training and health work she should have some experience in public health nursing, in the essentials of nutrition, and in school sanitation. If she also possesses some knowledge of matters that seem more properly to belong to the work of the school physician, so much the better.

In general, one nurse should be assigned to from 1,000 to 2,000 pupils. If public health and school work can be combined the quota assigned to one nurse might be reduced to 500.

The "routine" duties of each school nurse, whether working with a full time or a half time health officer, comprise (1) A daily meeting, preferably in the morning, in a room set aside for the purpose, for the inspection, instruction, and disposition of all children referred to her who are sus-

pected to be suffering from communicable diseases, from parasitic skin infections, or from any complaint calling for emergency help; (2) frequent inspections of class rooms for discovering unreported cases of communicable diseases, and for noting the cleanliness, temperature, ventilation, and illumination of rooms and the seating of the pupils; (3) giving health instruction to pupils and to teachers; (4) doing follow-up work; and (5) observing the sanitary condition of the school buildings and grounds.

Where whole-time physicians are employed the work of the nurse is commonly confined to assist them; where volunteer or half-time physicians are employed her work may include much wider duties, which are of course done under the physician's direction. In rural districts, where the demand for health work is much greater than the supply, the nurse will often be called upon to act as representative of the State health officer in the control of communicable diseases and in giving instruction on posture, nutrition and general health.

On taking charge, a nurse should (1) make contact with the county and local health officers and endeavor to correlate her duties with the other health activities of the district; (2) learn the prevailing state laws in regard to communicable diseases and medical inspection; (3) establish friendly relations with influential persons and organizations interested in the work.

After making a preliminary survey to ascertain the location and accessibility of her schools, the number of pupils, the cooperation to be expected from teachers, etc., the nurse should prepare a schedule for her visits to the different schools, so that the day and hour of her coming will always be known in advance to teachers, parents, and pupils. Such a schedule will be of very great help to her in discharging her arduous duties. More detailed information on the subject is contained in Reprint No. 783 of the U. S. Public Health Service.

Dr. Frederick F. Russell, formerly director of the International Health Board's public health laboratory service, has been appointed general director of the International Health Board to succeed Wickliffe Rose, who resigned to accept the presidency of the newly incorporated International Education Board and the General Education Board.

Health in the Hills of West Virginia

The Four-H Camps of West Virginia Stand for Inspiration and Leadership Throughout the State

BY ELLIS S. TISDALE, CHARLESTON, W. VA., AND JAMES A. TOBEY, NEW YORK CITY.

THE bugle is calling again at Jackson's Mill. Its reveille summons a laughing, shouting army and the sunrise sees the rhythmic motion of two hundred supple forms. In ten minutes, the setting up exercises are over and the boyhood home of Stonewall Jackson rings with the happy voices of many children. With the dawn has come another golden day in the hills of West Virginia. Could the grim old soldier return to the fields where he played as a boy, he would gladly yield possession. For the old

West Virginia calls these camping units, which exist in nearly all of her fifty-five counties, the 4-H camps. The four h's stand for Head, Heart, Hand, and Health, the most wonderful quartet in the world, which signifies all-around development. During the summer months thousands of boys and girls in the Panhandle state get together in these 4-H camps. The movement started in 1914 and is an outgrowth of the whole farm boy and girl club program of the agricultural authorities. Needless to say every boy and girl looks forward all year to that wonderful week in the Alleghenies, at Salt Sulphur Springs, at Webster Springs or on the picturesque Elk River. Here, amid the magnificent scenery of the hill country, the future citizens of the state learn, by means of play, instruction, inspiration and health, how to become community leaders.

The sanitary supervision of all the camps in the state is under the jurisdiction of the Division of Sanitary Engineering of the West Virginia State Department of Health, of which one of the authors (Tisdale) is director. The four principal duties of the division at the camps are: (1) To ob-

tain a safe water supply; (2) to provide for proper disposal of wastes; (3) to carry on physical examinations of the children; and (4) to give instruction in hygiene and sanitation to the campers. The opportunity to inculcate in these children a knowledge of sanitary science is a most valuable one for many of them have come from the rural districts where education in hygienic principles is not always possible, is rare, in fact. In order to supervise the health work in the camps, the staff of the Division of

to the state laboratory for bacteriological examination before the camp is used. In many cases, the water proves safe, especially if taken from a driven well. Where contamination is found, chlorination is employed to disinfect the water. The children in the camps are taught where to locate wells and springs, the dangers from an unprotected supply, how to protect them, and simple methods of water purification.

Let us see how the full-time camp health director goes about the problem of getting a safe drinking water supply in a camp where he happens to find an unsafe spring or well at the time when he examines the quality of the drinking water. His instructions call for a fifty gallon water barrel to be erected upon a suitable support, about three feet in height. A tight cover is provided and a hole one inch in diameter drilled in the side of the barrel four inches from the bottom. In this hole a wooden spigot is tightly fitted. After the barrel is filled with water, one-half a teaspoonful of hypochlorite of lime, mixed with a small amount of water until a paste has been obtained, is dissolved in the barrel and good distribution obtained by stirring with a clean rod. Thus, the entire fifty gallons of water is effectually disinfected.

Some means must be provided to see that exactly enough hypochlorite of lime is added. If too much is used the water may have a disagreeable taste, so that the children will object to it and go elsewhere for their drinking water. Disinfecting an army camp water supply is an entirely different proposition from treating a summer camp water supply. Soldiers must do as their officers order them, but children from twelve to eighteen years of age will not always follow suggestions and it is therefore wise not to over-chlorinate the water. To make sure,



The old homestead of Stonewall Jackson is a thirty-five acre camp where the pick of ten thousand members of boys' and girls' agricultural clubs assemble each year for ten days of intensive development along lines of Four-H ideals and principles.

Sanitary Engineering is increased by the addition of a full-time inspector for the months of June, July, and August. He is generally a medical student employed for this purpose, who has been given thorough instruction in camp sanitation. This inspector spends his time at various camps installing water purification devices, constructing sewage disposal plants, assisting in physical examinations, and delivering lectures and holding demonstrations in hygiene.

The water supplies in the camps are derived from a variety of sources. Some come from mountain springs, others from dug or driven wells, while still others are taken from rivers. As is well known, the typhoid bacillus may lurk in the most innocent appearing of sylvan streams. In every instance, samples of the water supply of the camp are taken and sent



The boys and girls at the camp had great fun and acquired real information in making themselves the concrete blocks and fashioning out of them the spring house shown in this picture.



Learning one of life's best lessons on the playground—Co-operation. Well trained in competitive sports, close competition heightens the interest in camp.

then, that no taste will be imparted to the water, a color testing kit for excess chlorin has been devised by the Sanitary Engineering Division. After the water has been treated with the specified amount of hypochlorite of lime, fifty cubic centimeters of it are poured into a long, thin glass tube and one cubic centimeter of testing solution, added to it. If the disinfection treatment is just right, a greenish hue will develop in the tube in five minutes. A second long glass tube which has the standard green color in it is used for comparison. If the greenish hue is too light, more hypochlorite should be added to the barrel containing the water, and if it is too deep, more water can be added to the barrel to reduce the treatment. By this simple color test, accurate treatment can be carried out and the disinfection process properly controlled.

For the disposal of body wastes, several methods are used. Latrine boxes are, in most instances, constructed according to approved design. In one or two of the camps, modern flush toilets in hotels are available. Garbage is generally disposed of by burial. The children are instructed in the dangers from fecal contamination and in as many instances as possible, the boys themselves construct the latrines and so learn by actual practice what to do and how to do it. The camp director believes firmly that the best way to teach is by actually doing. A type of latrine box which may be constructed from a good board 18 feet long by 12 cuts of the saw, and twenty minutes work with a hammer and a handful of nails has been devised.

The latrine box is made four feet long, twelve to eighteen inches wide and twelve to eighteen inches high, depending on the width of the board.

After the box has been nailed together with one side open, the top, that is, the side opposite the open one, is sawed into in such a manner that two triangular holes are cut with the point of the triangle to the front, two to three inches back from the edge of the latrine box. The sharp edges may be whittled smooth with a jack knife. Over the holes thus cut, two covers are placed, attached to the back of the box by leather strips serving as hinges. The covers are kept closed when the latrine is not in use by a backstop and block so that they can not be raised to a perpendicular position and will always fall shut when not held up. A pit is then dug from

cautions there were no cases of typhoid fever at any of the camps during 1921 and 1922. The physical examinations reveal many other defects, however. Of 481 children who were examined in nine counties in 1921, 93.3 per cent were found to have one or more physical imperfections. Nearly 70 per cent had defective teeth, and about 50 per cent had enlarged tonsils. Almost a third had faulty vision, 18 per cent were under weight, 17.7 per cent had defective hearing, and 16.6 per cent had flat feet. These statistics bring out vividly the necessity for such physical examinations and for positive health instruction.



Can't see many standing around waiting for a second invitation to get in on the game, can you?

three to six feet deep and over it the newly constructed latrine box placed and the earth tightly packed around the edges of the box. Thus, the whole affair is made absolutely fly-tight. Care is taken in the location of the latrine and it is placed at a lower elevation than, and at a safe distance from, the source of water supply and the mess tent. The insanitary, disease producing, open back privy, so common in the country is not allowed at any 4-H camp. The children are thus given an object lesson at camp which will bear fruit when they again return to their homes.

As a result of these sanitary pre-

parative part of the week in camp. Lectures on the romance of keeping well, on human engineering, and the high road to health are delivered, together with demonstrations when practicable.

A day's routine in one of these camps illustrates the way in which the four H's are cared for. At 6:45 a.m. the bugle calls. In a few moments ghostly forms appear running swiftly through the morning mists to the parade ground. For ten minutes, in the light of the rising sun, vigorous setting up exercises are led by the athletic instructor. Breakfast, simple but

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Relation of Safety Museum to the State Industries

By JOHN ROACH, DEPUTY COMMISSIONER OF LABOR, IN CHARGE OF ACTIVITIES OF INDUSTRIAL SAFETY MUSEUM, JERSEY CITY, N. J.

DURING the last decade a complete change has taken place in the working policy in modern industrial plants for the unsatisfactory spirit of command has given place to the more enlightened spirit of cooperation; thus spurring the worker to his greatest effort by means of persuasion, rather than demanding it through fear or force. Many of the larger and better managed industrial corporations of our country became dissatisfied with working results, a dozen years ago, and after an investigation of the possible cause of discontent and friction prevailing among their laboring forces they arrived at the conclusion that the constant migration of labor was due in a large measure to unsatisfactory working surroundings affecting either the safety, health, or comfort of their employees.

A labor policy that is not broad enough to comprehend the physical needs of the human body and its dependence on warmth, cleanliness, and nourishment must fail. Furthermore, if the labor policy fails to inspire confidence on the part of the worker that his employment is surrounded with the largest measure of safety to life and limb that its character will permit, it is entirely unsuccessful. The physical care of the worker should not be a subject for speculation or experiment. In many plants it is ranked as a matter of fundamental importance, and is placed in the same business column with the question of wages, hours of labor, and plant production.

Costly alterations and plant equipment that add to the comfort of the worker and to his safety have proved to be successful investments, because they stabilize the working force, and the improvement so effected in excellence and quantity of production lead to eventual repayment. In addition,

while the subject may be considered from the viewpoint of production and labor conservation, it must be remembered that public interest is also involved and this third factor is one of first magnitude, one before which all other interests must yield.

The maimed worker is a poor social asset and a distinct economic loss to the community. If he is injured, compensation may be paid to him or his dependents, but let us not forget that the burden of support that is provided by compensation rests upon the public as a whole.

Tremendous strides have been made in the industrial world in the work of providing safe premises for the working man, and to surround his employment with every comfort consistent with the character of the work to be performed.

The New Jersey Plant

In New Jersey the organic law gives the Department of Labor the

dustrial engineers and technical experts who are employed in and familiar with the industries of our state, so that the working codes represent practical working methods based on experience, and by reason of that fact, become in a large measure automatically enforceable.

In 1912 the Department of Labor of the state of New Jersey undertook the work of preparing safety codes covering the following industrial subjects: Fire protection, fire escapes, fireproofing, fire-alarm signals, fire drills, transmission machinery, freight elevators, engine stops, steam boilers, removal of industrial dusts, noxious fumes, and excessive heat, sanitation (including construction of toilet, wash room, and dressing room equipment), paint grinders, lead corrodors, lead oxidizers, nitro and amido compounds, hat felting, power laundries abrasive wheels, and safe practices covering the use of shellacs, enamels, and japans.

While these codes were being prepared, the department became convinced that the successful enforcement of industrial rules was dependent in a large measure on the cooperation that might be secured from employers of the labor affected by them. As these standards were the result of conferences in which engineers representing the varied industries of our State participated, there was reason to assume that employers generally were as much interested in their reasonable enforcement as the authorities who prepared them. After giving careful consideration to

the method of securing this greatly desired cooperation from the employers, the plan was adopted of asking each one of the manufacturing concerns in the state to delegate an employee (preferably an engineer, foreman, or superintendent in the plant, but in any case some employee



View of Sanitary Division, toilet and lavatory equipment, and a sanitary drinking fountain.

authority to provide safe working premises for those who are employed in factories, mines, and mills, and, in carrying out the intent of this legislation, a large number of industrial codes containing rules governing working practices have been issued. These codes are the joint effort of in-

occupying a position of trust and responsibility) to represent the department of labor in the plant, and to confer with the district factory inspector concerning an interpretation of these rules and their enforcement in that particular plant. This suggestion from the department met with a generous response from the employers, and in a short time about two thousand and six hundred representatives, or factory chiefs, as they were designated, had been appointed by the employers for this purpose.

Shortly after the inauguration of this movement, a meeting of nearly two thousand factory chiefs was held in Newark. Motion pictures were shown, various types of safety apparatus were on exhibition, excellent addresses on safety were made by competent speakers, and, in general, a great deal of enthusiasm on the subject of the promotion of safety was shown by the audience.

The need for the establishment of an industrial safety educational center became apparent to the Department of Labor about this time and the idea of such an institution became a part of the fixed policy of those who were entrusted with the responsibility of safeguarding the life, limb and health of the industrial workers of our state.

In 1910, Commissioner of Labor Lewis T. Bryant visited England, France, Germany, Austria, and Italy, to study industrial conditions and ascertain what administrative methods were in vogue in Departments of Labor in those countries. He visited the Safety Museums in Berlin, Vienna, Munich, and Milan and was greatly impressed with the educational opportunities afforded by museums of this character. On his return to America in his annual report to the state legislature, he recommended the establishment of an industrial safety museum. The legislature, however, took no action in the matter.

In March, 1919, Commissioner of Labor Bryant called a meeting of a number of the insurance carriers and other interested parties at Department of Labor Building, 571 Jersey Avenue, Jersey City, for the purpose of discussing the advisability of at-

tempting to establish an industrial safety museum.

This meeting was attended by representatives of the New Jersey State Department of Labor, Schedule Rating Bureau of Newark, and about a dozen insurance carriers, who agreed to help to finance the establishment of an industrial museum, and for this purpose about \$3,000 was raised.

It was decided to use the building under lease by the Department of Labor of New Jersey, located at 571 Jersey avenue, Jersey City. This build-

ing is a four-story building, 97 feet long by 50 feet wide. The work of organizing and developing the museum has been accomplished largely by the following persons:



Hospital Division. The equipment in this division has been standardized by the Medical Committee.

Lewis T. Bryant, commissioner of labor; John Roach, deputy commissioner of labor; C. H. Weeks, deputy commissioner of labor; Rowland H. Leveridge, chief, Bureau Electrical and Mechanical Equipment; Miss Lillian Erskine, chief, Bureau of Research and Statistics; Joseph F. Scott, chairman, Steam Boiler Operators' Bureau; and Robert Woodhouse, chief engineer, Manufacturers Liability Insurance Company.

An additional reason for the establishment of this museum lay in the fact that the passage of the Workmen's Compensation Law, in the year of 1910, compelled the reporting of all industrial accidents and for the first time in the history of the state, our citizens became apprised of the enormous physical toll that was taken annually by our industries. The ex-

losses more than 10 days work. Last year 285 of these accidents were fatal. The insurance carriers collected approximately \$4,500,000 in premiums and paid \$2,375,000 in compensation claims.

What the Department of Labor is endeavoring to do through the Industrial Safety Museum is to reduce the element of danger in our industries to the minimum. Analysis of the accidents occurring each year shows that from 75 per cent to 85 per cent are due to careless practices, while no more than 15 per cent to 25 per cent are due to causes that could have been avoided

by the installation of mechanical safeguards or other conservation appliances.

Effectual Object Lesson

We have established a central point where safety devices can be shown for the prevention of accidents, and an outline of the engineering requirements for the installation of safe guards on machinery, ventilation apparatus and sanitary equipment can be inspected.

We have received fine cooperation from the industrialists of the State during the two years that we have been conducting the museum, and our industries are paying a very great deal more attention to the safety of their employees, than they did prior to the inauguration of the safety first agitation. What we must have, however, is the one hundred per cent cooperation of the employees, men and women, otherwise our work will not be entirely successful.

During the past season beginning
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A Differential Analysis of the Reduction in the Death Rate

Statistical Appraisal of Public Health Efforts Justifies Optimism of Health Propagandists

By I. S. FALK, DEPARTMENT OF PUBLIC HEALTH, YALE SCHOOL OF MEDICINE, NEW HAVEN, CONN.

IT IS commonly recognized that mortality statistics do not constitute the ideal basis upon which to evaluate public health activities. They are utilized, perforce, for lack of accurate data upon the incidence of morbidity in a general, mixed population. In attempting an evaluation of public health work in terms of mortality data it is interesting to compare the trends of death rates from certain groups of causes of death. From an examination of the detailed International List of Causes of Death¹ it has been possible to arrange all of the specific, acceptable titles in three summary rubrics:

I. Causes of death towards the control of which the efforts of preventive medicine have been earnestly directed during the past twenty years:

Title No.	Title
1	Typhoid fever
2	Typhus fever
3	Relapsing fever
4	Malaria
5	Smallpox
7	Scarlet fever
9	Diphtheria and croup
12	Asiatic cholera
14	Dysentery
15	Plague
16	Yellow fever
17	Leprosy
18	Erysipelas
19	Other epidemic diseases
21	Glanders
22	Anthrax
23	Rabies
24	Tetanus
28	Tuberculosis of the lungs
29	Acute military tuberculosis
31	Abdominal tuberculosis
32	Pott's disease
33	White swellings
34	Tuberculosis of other organs
35	Disseminated tuberculosis
39	Scurvy
57	Chronic lead poisoning
104	Diarrhea and enteritis (under two y. ars.)
106	Ankylostomiasis

II. Causes of death which have received little or no attention in the public health program (at least during the larger part of the period studied):

Title No.	Title
20	Purulent infection and septicemia
25	Mycoses
27	Pellagra
37	Beri-beri
30	Tuberculous meningitis
39-45	Cancer (all forms)
46	Other tumors
47	Acute articular rheumatism
48	Chronic rheumatism and gout
50	Diabetes
51	Exophthalmic goitre
52	Addison's disease

1. Based on the second decennial revision by the International Commission, Paris, July 1-3, 1909. The death rates for the years preceding as well as succeeding 1910 are based upon the 1909 classification.

Title No.	Title
53	Takemecosis
54	Anemia, chlorosis
55	Other general diseases
56	Alcoholism (acute or chronic)
59	Chronic poisonings
60	Encephalitis
61	Simple meningitis
63	Other diseases of the spinal cord
64	Cerebral hemorrhage, apoplexy
65	Softening of the brain
66	Paralysis without specified cause
67	General paralysis of the insane
68	Other forms of mental alienation
69	Epilepsy
70	Convulsions (non-puerperal)
71	Convulsions of infants
72	Pericarditis
73	Neuralgia and neuritis
74	Other diseases of the nervous system
75	Diseases of the eye and their annexa
76	Diseases of the ears
77	Otitis
78	Acute endocarditis
79	Organic diseases of the heart
80	Angina pectoris
81	Diseases of the arteries, atheroma, aneurysm, etc.
82	Embolism and thrombosis
83	Diseases of the veins
84	Diseases of the lymphatic system
85	Hemorrhage; other diseases of the circulatory system
86	Diseases of the nasal fossae
87	Diseases of the larynx
88	Diseases of the thyroid body
93	Pleurisy
94	Pulmonary congestion, pulmonary apoplexy
95	Gangrene of the lungs
96	Asthma
97	Pulmonary emphysema
98	Other diseases of the respiratory system (tuberculosis excepted)
99	Diseases of the mouth and annexa
100	Diseases of the pharynx
101	Diseases of the oesophagus
102	Ulcer of the stomach
103	Other diseases of the stomach (cancer excepted)
105	Diarrhea and enteritis (2 years and over)
108	Appendicitis and typhlitis
109	Hernia, intestinal obstruction
110	Other diseases of the intestines
111	Acute yellow atrophy of the liver
112	Hydatid tumor of the liver
113	Cirrhosis of the liver
114	Biliary calculi
115	Other diseases of the liver
116	Diseases of the spleen
117	Simple peritonitis (non-puerperal)
118	Other diseases of the digestive system
119	Acute nephritis
120	Bright's disease
121	Chyluria
122	Other diseases of the kidneys and annexa
123	Ciculi of the urinary passages
124	Diseases of the bladder
125	Diseases of the urethra, urinary abscess, etc.
126	Diseases of the prostate
127	Non-venereal diseases of the male genital organs
128	Uterine hemorrhage (non-puerperal)
129	Uterine tumor (non-cancerous)
130	Other diseases of the uterus
131	Cysts and other tumors of the ovary
132	Salpingitis and other diseases of the female genital organs
133	Non-puerperal diseases of the breast (cancer excepted)
142	Gangrene
143	Furuncle
144	Acute abscess
145	Other diseases of the skin and annexa
146	Diseases of the bones (tuberculosis excepted)
147	Diseases of the joints (tuberculosis and rheumatism excepted)
148	Amputations
149	Other diseases of the organs of locomotion
150	Congenital malformations (stillbirths not included)

Title No.	Title
152	Other causes peculiar to early infancy
153-154	Suicides (all forms)
152-154	Homicides (all forms)

III. All other causes of death; including

(a) The specific causes of death which have received some attention but which have been outside of the field of effective control because of etiological, administrative or economic factors:

(b) The causes of death in which statistical nomenclature has undergone important modifications; the ill-defined titles; the non-specific *omnia gathera* and the "cause unknown" groups:

Title No.	Title
6	Measles
8	Whooping cough
10	Influenza
11	Miliary fever
13	Cholera nostras
31	Abdominal tuberculosis
32	Pott's disease
33	White swellings
34	Tuberculosis of other organs
35	Disseminated tuberculosis
36	Rickets
37	Syphilis
38	Gonococcus infection
58	Other chronic occupation poisonings
62	Locomotor ataxia
89	Acute bronchitis
90	Chronic bronchitis
91	Bronchopneumonia
92	Pneumonia
106	Ankylostomiasis
107	Intestinal parasitiasis
134-135	Accidents, diseases, and conditions incidental to the puerperal state
141	Congenital debility, icterus and sclerema
151	Lack of care (early infancy)
154	Senility
164	Poisons, burns, traumatism
181	Fractures (cause not specified)
186	Other external violence
187-189	Ill defined or not specified

Thus, every one of the 189 specific titles of the International List is included in one or the other of the three summary rubrics, and no single item is included more than once. Before proceeding to a study of death rates for these composite groups it is perhaps pertinent to examine the basis of the groupings somewhat more closely.

It is a matter of first importance to emphasize that no attempt has been made in the preparation of rubrics I, II, and III to assign causes of death according as they are or are not controllable, or have or have not been controlled. Any classification based

upon such criteria cannot avoid the shortcomings which are inherent in conclusions based upon controversial evidences from pathology in the one case, or artificial selection in the other. Our efforts in this study are designed merely to indicate the *pros hoc* relationships between the efforts of public health workers and the trend of death rates. Accordingly, we have grouped the causes of death as they have or have not been the *objects of control* of preventive medicine. It is obvious that such a procedure can throw no conclusive light upon a proper evaluation of public health efforts. It can merely bring out certain relationships which may or may not be dependent one upon the other.

In preparing the detailed inclusions for each of the three summary groups we have been fully aware that the allocation of certain specific titles is not very clear [i. e., scarlet fever, erysipelas, diseases of the puerperal state, organic diseases of the heart, diarrhea and enteritis (two years and over), acute nephritis and Bright's disease, etc.]; that changes in the nomenclature of nosology are extremely difficult to evaluate; that the death rates corresponding to certain specific titles have been influenced by the general increases in longevity and improvements in medical diagnosis and treatment more than others; etc. Furthermore, we have been guided in a considerable measure by our convictions that in this study the growth of the public health program in the last decade must not be minimized and that the extent of public health activities of today must not be used as the sole criterion for measuring the activities of the period 1900-1920. It has been our aim to strike a balance between the work of 1900 and that of 1920, recognizing the while that the conclusions merely represent the best of our judgment.

According to the actual definition of rubric I, it would appear that under it should be listed the title of every cause of death which has appeared in any significant position upon the program of a health department. For reasons which are associated with the

individual titles, measles, whooping cough and influenza have been placed under rubric III instead of I. Because of insufficient information upon the etiology, incubation period, period of communicability, etc., the program of public health control of these diseases has been notably incomplete, particularly in the first decade of this century. Scarlet fever has been arranged in group I because it happens in this particular instance that sufficient epidemiological knowledge has long been available in place of more desirable experimental evidence to

was being waged in those years and hence the justification for its listing in Group I.

Cancer and organic diseases of the heart are listed in Group II. An extensive campaign aiming at their control is a product of the most recent years and was essentially non-existent in the largest part of the two decades being studied here. Similarly, *alcoholism (acute or chronic)* has been included in Group II because the campaign to diminish deaths from this cause has been conducted on an extensive scale throughout the country since only very recent years and was in operation in individual states for too short a period before 1920 for it to bear any relation to mortality from this cause in 1900 to 1920.

Syphilis and gonococcus infection have been given various positions of prominence in the public health work of different organizations. The sociological difficulties inherent in attempts at their control may not be minimized. Hence, these causes have been included in Group III. Titles 164-181 (poisons, burns, traumatism), 185 (fractures) and 186 (other external violence) fall into Group III because the present-day extensive campaign against accidents is a product of the last quinquennium and because earlier programs for the control of fatal accidents (chiefly industrial, mining, and railroad) have not been concerned with the numerically most important types of accidents and because many of the preventable causes of mortality in these groups have not been held to lie within the sphere

of public health problems.

The final classification has been presented in detail so that it may be examined by any who are critically inclined. The specific death rates for each cause of death were obtained from the Census Bureau Tables² for the quinquennial years 1900, 1905, 1910, 1915 and 1920 (applying to the

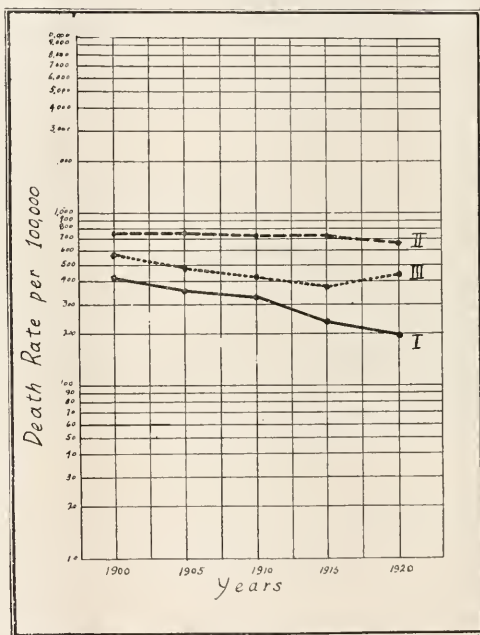


Figure 1.—The trend of mortality in the expanding Registration Area for Deaths, U. S., 1900-1920. (I) Causes of death whose control has been the object of public health efforts. (II) Causes of death which have received little or no attention in the public health program. (III) All other causes of death.

place the program of control on an effective administrative basis.

All forms of tuberculosis except tuberculous meningitis have been entered in Group I because the public health program for their control has been waged with appreciation of the etiological, epidemiological, and sociological factors which are peculiarly important in this particular problem. Whether one does or does not incline to accept the validity of the underlying assumptions in the anti-tuberculosis program of the years 1900-1920, the fact remains that an extensive campaign for controlling the disease

² Mortality Statistics, 1910, pp. 82-87; 1915, pp. 54-57; 1920, pp. 110-113.

³ The death rates given in the table for "all causes" are taken directly from the Census Bureau's tables. By summing the rates for groups I, II, and III, we obtain the rates 1,754.7, 1,602.1, 1,349.9, and 1,300.0 for the successive quinquennial years. The agreement is sufficiently close for the present purposes.

(Continued on Page 500)

Welfare of Colored Workmen at Armco

Realizing the Specific Needs of Foreign and Colored Groups, Every Facility Is Provided at Maintenance Cost to the Men

IN INDUSTRIAL medicine no less than in social work, the care of the colored workman encounters many obstacles. When such employees are few in number, measures directed toward the sanitation of work places and the supervision of living conditions often fall far short of full effectiveness for these isolated groups. The American Rolling Mill Company, Toledo, O., has made unusually effective provision for foreign and colored groups. Educational classes are organized for their specific needs; and bachelors' clubs with dormitory and dining accommodations are provided.

Believing that men can give their most efficient effort only when they come to work from clean homes to work in clean, well ventilated, and safe mills, separate sleeping quarters, attractive and well cared for, are provided for the colored men. The housing service also provides cottages with garden plots when these are called for. Care for the appearance of the homes is stimulated by prizes offered each year for the best vegetable and flower gardens. A young colored woman who visits the colored families in the capacity of a friend, has organized sewing clubs and a literary circle. In the winter she teaches a kindergarten class, and in the summer supervises playground activities.

Six dormitories are maintained for the men. Facilities include a restaurant, a bath house, laundry conveniences, and a hall for recreation and assembly where there are available a barber's chair, billiard and card tables, a lunch stand, a piano, and reading tables supplied with good literature. The cost to the men is based upon maintenance charges.

The colored club hospital, opened in 1918, and maintained in connection with the club, cares for the sick as well as the injured men in this group. The hospital provision consists of

employees' organization. During the war the educational department found it desirable to put on a colored teacher of special classes in the common branches. Training classes for mechanical and electric apprentices admit all the men. The report of the educational department for 1921 shows that a total enrollment of 1,825, both white and colored was made in this department, and 286 were awarded certificates.

Apprenticeship courses are given to develop skilled molders, machinists, electricians, blacksmiths, and bricklayers. The applicants are chosen on the basis of tests as to the characteristics necessary for the chosen work. All apprentices receive pay for class room work and special inducements are offered to complete the required work. A bonus of one hundred dollars is paid to each apprentice who completes his course, and an additional bonus of fifty dollars is given to each apprentice who remains with the company six months after this training is completed. The certificate awarded is approved by the National Association of Corporation Training.

Activities, social and athletic, are many and various and employees' benefit organization takes care of all cases of injury or accidental death not covered by state insurance. It is regarded by the management that these activities have been a very real financial asset to the company, and the employees themselves aver that their best inspiration has grown out of the mutual protection and contentment which has

been a by-product of these welfare activities. Dormitory provision and recreational opportunity have likewise a health bearing that is coming to be better understood.



Dormitory arrangement provided for colored workmen during war time by the American Rolling Mill Company, Middletown, O.

waiting, dressing, and drug rooms; a kitchen, pantry, bath, two private patient rooms and two wards of ten beds each. The visiting nurses serve both white and colored families.

The management of the restaurants



Light, plenty of space, and ample ventilation safeguard the sleeping workmen housed at the Middletown plant.

is under the management of the stores department. It is considered that the dining rooms are one of the most effective measures of the mutual interest work that is conducted by the em-

The Henry Street Visiting Nurse Service

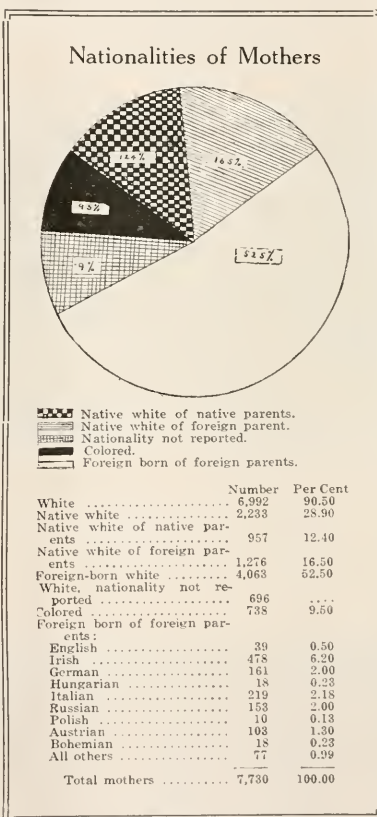
A Top Floor Apartment, with Only Two Nurses and Little Equipment, Has Its Modern Counterpart in Twenty-Three Centers

By DOROTHY DEMING, WEST SIDE FIELD DIRECTOR, HENRY STREET VISITING NURSE SERVICE, NEW YORK CITY.

JUST thirty years ago, two nurses, Miss Lillian D. Wald and Miss Mary Brewster, rented a top floor apartment on Jefferson Street, lower East Side, New York, and, associating themselves with the neighborhood, endeavored to bring skilled nursing care into the needy homes there. Even as they served, they nursed into life the embryo plan of the great visiting nurse service of today. The Henry Street Visiting Nurse Service has grown from this initial staff of two nurses to two hundred fifty. One hundred eighty-nine of these are graduate trained nurses, thirty-seven are undergraduate nurses, and twenty-six are clerical workers. The top floor apartment has its modern counterpart in twenty-three nursing centers, scattered far and wide throughout the boroughs of Manhattan, Richmond, and the Bronx. Their functions are administered, directed, and centralized in the beautiful new administration building at 99 Park Avenue. "This building is given in memory of Jacob Henry Schiff, by Therese, his wife, and is dedicated to the cause of Public Health Nursing."

The simple chart shown below will give a graphic picture of the organization of the Visiting Nurse Service as it is today.

The twenty-three nursing offices range in size from a staff of two or three nurses to thirty nurses. Each center is in charge of a supervisor or assistant supervisor or



assigned to one of the three field directors, who form a connecting link between the administrative office and the branch offices. The field directors, supervisors and staff are directly responsible to the general director of nurses.

Besides the regular members of the staff, who must be high school graduates and registered nurses in New York state, there is a body of undergraduate students who affiliate during their hospital training with Teachers College and the Henry Street Visiting Nurse Service. The students come from Bellevue, Post Graduate, St. Vincent's, Presbyterian, Walter Reed, Newton, and several other hospitals, for the undergraduate experience, in which three courses (six points) are taken at the College and twenty-eight hours per week devoted to practical field work at some one of the teaching nursing centers. A month's experience in confinement and maternity work is given to all the undergraduate nurses affiliating with the Manhattan Maternity Hospital and Dispensary. This latter experience is given at the Seventy-ninth Street Center, from which the night delivery service is carried.

Graduate nurses who have had an eight months' cruise at Teachers College are assigned to the Henry Street Visiting Nurse Service for ten weeks of field service for credit. Graduate nurses who have had an accredited course in Public Health Nursing here or elsewhere are eligible for advanced positions on the staff. An adjustment in salary is made for those staff nurses wishing to take theoretical work at the College, in accordance with the number of hours devoted to the field work. Forty-four of the present staff are taking advantage of this opportunity to increase their theoretical knowledge, without losing touch with the practical work.

The calls for the nurse are received

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at the branch offices, any time during the day. The nurses report for duty at 8:30 a.m., and leave their work at 5:30 p.m. They are in the district from 9:00 to 12:30, and from 2:00 to 5:00. The average number of visits per nurse per day is eight. All calls are answered without regard to their source, but are carried only with a physician in attendance. A charge of one dollar is made for each visit or an adjustment is made in the case of families unable to meet this cost for a visit. The Metropolitan Life Insurance Company pays for the visits on its industrial policy holders. During 1922, 386,172 visits were made on 51,119 patients. Of these calls, 27.9 per cent came from the family. Each nurse cares for her own district and she carries all types of cases within that area. It is her function, not only to give the sick in their homes skilled nursing care but also instructions in personal hygiene, sanitation, and prevention of diseases, and, as far as possible, to solve the related social and economic problems that are met with in the families under her care, either by using the resources of the organization or referring the problems to the proper cooperating agencies.

The maternity service provides for attendance of a nurse at confinement, day or night, in the upper east and west sides of the city, and in the Bronx, 1,273 deliveries were attended by the nurses during the past year. A charge of five dollars is made for the first five hours of a delivery, and one dollar per hour up to ten hours thereafter. It is planned to make the confinement service a part of every staff nurse's experience in the near future. In several offices, prenatal clinics, with a doctor and nurse in attendance, are provided by the New York Maternity Center Association, at which the Henry Street Nurse assists and to which she sends patients not registered with a hospital or private physician. All babies are carried one month and are then discharged to the baby health stations maintained by the Board of Health, or to the New York Diet Kitchen Centers.

While there are uniform standards, office

routine, and equipment throughout the organization, each center offers its own special problems and developments, and diversity of experience. The nursing center in Westchester, which serves an intelligent suburban population, is as different from the one in Hamilton House, 72 Market Street, as one can well imagine. At the latter, the work is with Italian, Greek, and Chinese tenement dwellers.

The presence of the undergraduate students at certain centers brings an added zest in developing the resources of a district, not found in the smaller offices. The centers situated in the settlement houses, of which there are several, offer cooperations in health classes, examinations of children registered for clubs and classes, dental clinics, and baby-weighing clinics. There is not a center in the service which does not offer clinic experience of some type.

The services of two nurses for first aid and physical examinations of employees are provided for two factories, while a recent development has been the placing and supervision of convalescent babies in foster homes, in cooperation with the Speedwell Unit. This gives an unusual experience in Child Welfare work.

The service on Staten Island, administered by Henry Street, but under a local committee, known as the Staten Island Visiting Nurse Association, offers opportunities for community organization and the development of self-support.

Whether in Staten Island, Manhattan, or the Bronx, each nurse is striving to bring home a sense of responsibility for public health and public welfare to each family or individual with whom she comes in contact. In a few centers, small groups of cooperative people, living in the neighborhood, have been brought together and their interest in spreading health information and in bettering community health has been secured. In other areas, representatives from agencies working in the district are trying to instill this same spirit of responsibility. These community groups are calling themselves "Health Conferences," and it is hoped that the end result of their efforts will be a fuller knowledge and use among local residents of the resources offered to them, as well as an active share in the support of these services. The accompanying graph shows at a glance the proportion of foreign born maternity patients receiving the services of the nurse—52.5 per cent. In 1916, the highest number of calls for the nurse came from the physicians; in 1920, from the Metropolitan Life Insurance; but in 1922, they came from the families themselves. This evidence of an increasing popular knowledge of how to get a nurse, and the fact that the family is taking the initiative, would lead one to hope that the support from the community is increasing. At present, practically 32 per cent of the services rendered are paid for. Whether the calls from the family indicate stronger financial

backing or not, there can be no doubt that the nurse has demonstrated her educational value in the home.



A sick mother, being helped as well as instructed in the care of her children by a visiting nurse from the Henry Street Settlement.

The New York Cancer Institute is the name of new central hospital and clinic to be established under the direction of Bird S. Coler for the exclusive treatment of cancer among the city's poor. Complete equipment for diagnosis will be provided and the most highly improved apparatus will be available for high-voltage treatment. Dr. Isaac Levin, clinical professor of cancer research at the New York University, has been appointed medical director of the institute.

Everywhere Safety Pays for Itself in Increased Production

Conservation Carries Its Concomitant Saving of Time and Energy, and Comprehensive Planning Produces an Organic Whole

BY JOHN A. OARTEL, CHIEF OF SAFETY BUREAU, CARNEGIE STEEL COMPANY, PITTSBURGH, PA.

THERE are three things included in production in a manufacturing plant, which will serve as an outline of this article, *i. e.*, machinery, material, and men.

By machinery, I mean the equipment which composes the physical plant; buildings and mechanisms of various kinds. Before the advent of safety, very little thought was given by designers of buildings and equipment to the subject of accident prevention. Some of us who remember that about the first thing that occurred with the advent of safety, was that inspections were made and reports turned in recommending safeguards of all descriptions to safeguard machinery and dangerous places. I well remember that at a mill where I was employed the cost of recommendations ran into the thousands, and it was several years before they were completed. At the present time, in any up-to-date plant a very minute check is kept on all buildings and equipment planned and machinery ordered. Every blueprint, before it leaves the drawing room, has on it the magic words "Checked for Safety." All orders read, "This machine shall be fully equipped with all safety devices." National codes, state codes, and company codes, are very much in vogue, and the designing engineer has learned to consult the safety engineer before beginning a new piece of work. Now it is very much easier and cheaper to guard a machine or piece of equipment when ordering it than it is to guard it after it is installed. In a certain steel mill, not long ago, they decided to cover the gears on their overhead

traveling cranes as a safety precaution. The cranes were at least ten or fifteen years old when these steps were taken. It was found that the mechanical gang which would ordinarily do this work was very much depleted by shortage of labor and the job was given to an outside concern at a much increased cost.

Another place where safety has

two lathes were in operation. Today safety says, "Install an individual motor drive wherever possible." This is not only an enormous saving of power, but in addition, in case of an accident or break-down, the power can be quickly shut off by pressing a small push button. In former times, the only thing that controlled the speed of a stationary engine was the governor, which we know is not altogether reliable. I well remember that before the days of automatic engine stops, a large rail mill engine ran away one night. The fly wheel burst and the engineer was killed. In addition to this, a piece of the fly wheel cut the main lines that supplied light to the entire plant, which was plunged into darkness. It was several weeks before the plant could resume operations. I will not attempt to say how much production was curtailed during that time, but the plant was producing between seventy-five and one hundred thousand tons of steel rails per month. Today we have the automatic engine stop, which has saved numerous lines and thousands of dollars.

I recall an operation in a steel plant where sixteen bars were lowered into an acid solution, to remove the scales from them. The method was to use a chain sling, which remained in the acid during the pickling process. This, of course, was hard on the chain and one day it broke, resulting in the death of one of the workmen. To prevent a repetition of an accident of this nature, an additional tank was constructed and placed alongside the first one. The bars are now placed in one of the tanks, which is empty, and the chain sling is removed. The acid solution is then syphoned in from the

Safety Program Creates New Objectives

EFFICIENCY is a portmanteau word. Applied first to mechanical safeguards, it has come to carry the modern concept of complete engineering revision of the plant in methods, mechanics, and men.

But a plant is no more a business than a completely safeguarded machine is an index of safety, and it was not until the fitness and educability of the human machine entered into the safety drive that production, as the end achieved, and measured in terms of human contribution, become the true criterion of efficiency.

Wherefore haphazard methods with men have gone into the discard along with other needless hazards of industry. The incentive is yet to be found that compares with effectual performance of the day's work.

aided very much in the equipment of a plant has been with reference to power for machinery of various kinds. The former method was to have one engine drive all the machinery in the shop. This involved a complicated equipment of overhead shafting which at the very best was dangerous. The large engine would have to keep running and a full head of steam maintained in the boilers if only one or

the acid during the pickling process. This, of course, was hard on the chain and one day it broke, resulting in the death of one of the workmen. To prevent a repetition of an accident of this nature, an additional tank was constructed and placed alongside the first one. The bars are now placed in one of the tanks, which is empty, and the chain sling is removed. The acid solution is then syphoned in from the

*Read before the School for Safety Supervisors, Chicago, May 21, 1923.

other tank; the crane then takes up the bars from the tank, from which the solution has been syphoned, transfers them to a car and brings another load to the empty tank. The syphoning process is then reversed, and the load is taken from the other tank and a new load placed in it. This new process not only keeps the chain slings from the acid, but allows the crane to do twice as much work.

Handling of Material

Having completed a physical survey of the plant, the attention should turn to material going through it. It will be impossible to treat this in detail as the materials handled in American industrial plants cover too wide a range. The question we wish to answer is "How can the application of safety devices or safety principles assist or facilitate the passage of the raw material through an industrial plant until it is turned out as a finished product?" The busy executive has his eye on the cost sheets. He is not very cordial to anything that will hinder the process. We have the slogan "Safety First" that has been ringing in our ears for ten or twelve years. Does it mean anything or is it merely a catch word to attract the attention of the crowd? I have had a very good opportunity to meet executives of all kinds and to visit their plants in the last few years in connection with the work of the National Safety Council. I am happy to state that executives of all sorts all over this country are becoming more and more friendly to safety. Last Fall, I was asked to give an address to the safety council of one of the larger cities of this country, the council in this particular city being affiliated with the chamber of commerce. A dinner was given before the meeting, which was attended by the executive committee of the council and the directors of the Chamber of Commerce. At that dinner, the president of the Chamber of Commerce gave a short address, and among other things he stated that the Safety Council was the liveliest thing that had ever come into the work of the Chamber of Commerce. It was, he said, the thing that established a very vital contact between the chamber and the people of the state.

On another occasion, I addressed the chamber of commerce of a thriving city of about one hundred thousand population in the east. They were debating the question of organizing a safety council in that city. For two hours at noon those busy executives

conferred together as to the best methods of conserving human lives in that state. The point I wish to make in this is that a type of executive is growing up and being developed in this country who is sympathetic toward safety. Executives do not want to turn out products from their mills and manufacturing establishments at the cost of human lives and limbs. I have heard executives tell their foremen and men, both publicly and privately, that they want them to practise safety first even though the operation be slowed down. The big and vital problem of the safety supervisor, then, is to install methods by which the process may be not only carried on safely but also efficiently. Safety alone is a good thing, but safety and efficiency are hand-maidens whose charms no executive is able to resist.

The handling of material probably produces more accidents than any other one thing and the material that must of necessity be handled by hand labor seems to be the chief offender. In the latest bulletin of the Steel Corporation a chart is given which shows that approximately 44 per cent of all their accidents are due to hand labor. There are two ways by which this class of accidents may be eliminated, *i. e.*, substitution of mechanical equipment for hand labor and education of the workmen.

A body of safety supervisors recently inspected a steel plant in connection with a safety meeting held there. One of the party came from an old fashioned rolling mill, where the pieces as they come from the rolls are caught by a man with a pair of tongs and put into the next pass. In the mill to which the party went instead of having a man to do this work, a curved iron trough in the shape of a "U" was set up. This trough received the piece as it came from the rolls and guided it to the next pass. The man from the old time mill went back and installed one at his plant. At one particular place in his plant four men were engaged in the work I have described. The installation of this device eliminated these four men and thereby prevented them from ever being injured and in addition the company is saving five thousand dollars per year by the installation.

At one plant engaged in the manufacture of small bars, two units of the plant were located on opposite sides of a city street congested with traffic. One part of the process required that the bars be transferred across the street from one unit to the other. This was accomplished by trucks

drawn by horses, in all, eight horses and their drivers. A change was made a few years ago by substituting gasoline trucks for the horse-drawn vehicles. This substitution eliminated the possibility of accident to horses and drivers alike on account of lack of control on the busy street. Now they have a mechanism which is at all times under perfect control and the company thereby saves fifteen thousand dollars every year.

The Personal Equation

The last factor in this discussion is men, by far the most important and interesting. In the beginnings of the safety movement it was thought that with perfect engineering revision and with plants completely safeguarded, accidents would be eliminated entirely. The fact is, that safeguarding has only eliminated from one-fourth to one-third of them. I am familiar with a plant that is the last word in safety as far as construction and equipment is concerned. The machinery is electrically driven; in fact there is only one fifty horse-power boiler at the plant and that is used for heating purposes in cold weather. There is very little if any hand labor, and an elaborate system of subways connects the various departments, so that men do not need to cross tracks or go near any moving machinery. Yet, notwithstanding the elaborate physical precautions taken to insure safety, this plant has had a greater accident rate than similar plants under the same management which are older. The reason is that not enough consideration has been given to the personal element. It is a strange thing that with all the developments and refinements of civilization and education, human nature is practically the same today as it was when the world was young. Man is not born with the safety habit but acquires it from education and experience. The National Safety Council, through its foreman's instruction courses has been an important factor in the last few years in educating a large number of foremen all over the country, who have in turn educated the men over whom they have supervision. I know of a steel plant in the Pittsburgh district which one year sent a hundred or more of its foremen to the National Safety Council safety instruction course. The foremen were so enthusiastic about the course that they asked if a similar course could be conducted in the mill town for all the foremen at the plant. This was accordingly done and a course of six lectures was con-

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Editorials

The news of the death of Dr. Hermann Michael Biggs, commissioner of health of the state of New York, has come with a sense of

deep personal loss to every health worker in the United States and to innumerable friends and colleagues on the other side of the Atlantic.

Dr. Biggs
Passes
1859-1923

Dr. Biggs was a graduate of Cornell and of the Bellevue Hospital Medical College. He taught pathology and, later, medicine, at Bellevue, served as first director of the Carnegie Laboratory, as pathologist and, later, general medical officer of the New York City Department and finally as State Commissioner of Health. He was a director of the Rockefeller Institute for Medical Research and a member of the International Health Board and occupied positions of leadership in various organizations devoted to the control of tuberculosis and other aspects of the public health campaign.

Memories innumerable, of notable achievements for the cause of public health, crowd into one's mind in looking back over the period between 1859 and 1923 covered by this rarely fruitful life. The establishment of the first municipal bacteriological laboratory in the world and the organization of the first comprehensive municipal program for the control of tuberculosis, the introduction of diphtheria antitoxin into this country, service in all quarters of the globe as a member of the International Health Board, and medical director of the League of Red Cross Societies are among its individual outstanding achievements.

These were all parts, however, of a broader general program and it is as America's chief sanitary statesman that Dr. Biggs will be most widely remembered. As general medical officer of the New York City Department of Health from 1901 to 1914 and as commissioner of health of the state of New York from 1914 until the time of his death, Dr. Biggs was the guiding and impelling force in building up the strongest city health department and the strongest state health department in this country and perhaps in the world. These two organizations stand, and will continue to go forward, as living monuments to his memory. He built these departments soundly

and firmly on the basis of science; and the important part played by the health laboratory in American public health is largely due to his influence. Through a period of twenty years he made scientific knowledge bear fruit by dealing with political leaders of both parties in such a way that they respected him and loved him. He was wise as the serpent in avoiding needless complications and brave as a lion in meeting every issue of principle. The health center law upon which we comment below was only the latest in a long series of triumphs due to his vision.

Above all, however, there is left to us who knew him the memory of a rare and precious personality. He performed the miracle of combining tireless and efficient public service as a health administrator with preeminence in his original profession which maintained him in the front rank of internists in this country. Over professional colleagues and associates, over politicians and patients, he exercised a personal magnetism which made him primarily a leader of men. Those who had the privilege of working with him felt to him the absolute devotion that is given to a great military leader. He was indeed a captain in the war against disease, whose victories won freedom for thousands from the bonds of suffering and of death.

Three years ago reference was made in these columns¹ to the recommendations made by Governor Smith of New York, during his first term,

New York Sanitary Statesmen

for the development of health facilities in the rural districts. This measure of which we said editorially "Probably never before in the history of this country

has so far-reaching a measure been proposed by responsible authorities," failed of passage by a narrow margin in the 1920 legislature. Governor Smith is once more in the capitol at Albany and in a special message under date of April 11, 1923, he called attention once more to the serious situation created by the lack of medical service in the rural districts and recommended the enactment of legislation providing that "when the county supervisors of counties having no first or second class cities, undertake public health work and make an appropriation therefor, either for small community hospitals in rural districts or public health activities of any other kind, the State shall appropriate a similar amount, dollar for dollar. The work to be done must conform to the standards of the State Department

of Health and any money supplied to the county must be upon certificate of the State Commissioner of Health that the work is necessary and is satisfactorily done and conforms to the standards of the department."

As a result of this message, Assembly Act 2392 was approved by the legislature² with the following fundamental provision:

Whenever the board of supervisors of a county, exclusive of a county having within its boundaries a city of the first or second class, shall appropriate and expend moneys for the construction, establishment or maintenance by such county of a county, community, or other public hospital, clinic, dispensary or similar institution, or for the purpose of defraying the expenses of such county in any public enterprise or activity for the improvement of the public health, or any public health work undertaken by such county, such county shall receive state aid in the manner and subject to the conditions prescribed in this article. The legislature from time to time shall make appropriations for the purpose of rendering such state aid.

Among the other bills approved by the General Assembly of New York was one amending the public health law in relation to general health districts which provide that after the board of health of a general health district has prepared its estimates of expense and the board of supervisors has inquired into the necessity for the various items involved, the board of supervisors shall levy a tax on the real and personal property within the limits of the district sufficient to meet the expense deemed necessary, and that in making such an estimate "the Board of Supervisors may lawfully include therein and approve of items of expense which may in any degree tend to promote the efficiency of the administration of the provisions of the public health law and other regulations adopted in pursuance of the authority thereof." (Assembly Bill, No. 1681.)

Assembly Bills Nos. 2038 and 2359 deal with the provision of local laboratory service permitting the board of supervisors of any county to establish a public health laboratory for a definite area services of the laboratory to be rendered at a moderate charge or fee. Upon the petition of two hundred or more tax-payers the governing board is required to hold a referendum on the question of establishing such a laboratory. And when county or district laboratories are thus provided under general conditions laid down by the state department of health, state aid is to be granted for the maintenance of such laboratories.

Taken together, these bills represent one of the most significant developments in the history of American public health practice. Their passage was made possible, first of all, by the statesmanship of Health Commissioner Biggs and the

1. Modern Medicine, iv, 269 and 276, April, 1920.

2. See page 194 of this issue for the full text of the bill.

vision of Governor Smith and, second, by the wise policy pursued in calling together in February the leading medical men of the state for the consideration of these problems—a procedure which succeeded in enlisting the support of the medical profession for the policies proposed. By this legislation the state of New York is definitely committed to the policy of state aid to rural communities for the development of a public health program on the widest possible scale. The results will be watched with the keenest interest by public health workers throughout the country and should be fraught with far-reaching benefits for the health and welfare of the citizens of the state.



Considerable concern has been evinced by public health workers as to the possible lessons to be drawn from a comparison by Professor Raymond

Public Health Does Pay

Pearl of the rate of reduction in the death rate from certain "controllable" and "non-controlled" causes of disease¹. As controllable causes of death Pearl selects

tuberculosis of the lungs, typhoid fever, diphtheria, and croup and dysentery, a classification to which no reasonable exception can be taken. For non-controlled causes of death, on the other hand, he chooses bronchitis (acute and chronic), paralysis without specified cause, purulent infection and septicemia, and softening of the brain, and, to this selection, practical vital statisticians will have the most vigorous and well founded objection. The author states that he chose these four diseases at random from among the causes of death whose rates he knew to be declining. In other words, they are obviously selected to show that some causes of death, other than those easily controllable, exhibited a reduction. The choice of these particular titles would seem, however, to be a singularly unfortunate one. All four of them and particularly the last three are indefinite and unsatisfactory terms which registrars have for years been trying to eliminate by returning death certificates and asking physicians to substitute other causes of more definite significance. The reduction in the apparent death rate from the last three of these causes, and in part from the first, is beyond question simply a matter of better statistical classification, the deaths earlier reported under those unsatisfactory headings being transferred to others².

It seems well worth while to consider this question of reduction in controllable and non-controllable causes of death from a really comprehensive basis. This has been done in the present issue of *THE NATION'S HEALTH* by Dr. Falk, who has divided all causes of death in the International List under three general rubrics and has analyzed and plotted the results. There will no doubt be differences of opinion in regard to particular items as to whether they should be classified as "causes of death toward the control of which the efforts of preventive medicine have been earnestly directed during the past twenty years; causes of death which have received little or no attention in the public health program at least during the larger part of the period studied; and all other causes." In general, however, the basis of classification seems sound, and all seriously doubtful causes of death like measles and whooping cough (which we have attempted to control, but in regard to which we have obviously failed to secure the necessary cooperation from the public), venereal diseases (where an effective campaign on a general scale has only been carried on since the Great War), pneumonia and bronchitis, (where a knowledge of effective control measures is still woefully incomplete) and accidents, (where except for certain industrial efforts the campaign of prevention is very recent) are included under heading III.

It appears from Dr. Falk's study that the group of causes of death which have been subject to a definite and purposeful public health endeavor have been reduced in twenty years by 54 per cent, that the group which have not been subject to any comprehensive plan of control have been reduced by only 10 per cent, and that the doubtful intermediate group shows a reduction of 25 per cent. The first group of causes according to Falk's classification accounted in 1920 for less than 2 deaths per 1,000, the second group for 8, the third for 4. It would seem then that a fair and comprehensive analysis of the statistical material at our disposal furnishes a complete vindication of the achievements of the modern public health campaign and stimulates us to transfer our aggressive efforts to the causes in the last two groups, many of which are today recognized by the progressive health worker as presenting substantial promise of a possible control. Though during 1900-1920 there has been a general decline in the death rate from all causes, such a shift in health emphasis would in all probability mark the less favorable groups by the same substantial reduction that Group I records during the past twenty years of health effort.

1. Pearl, Raymond. *The Biology of Death*. W. B. Saunders Company, Philadelphia and London, 1922.

2. Dublin, L. I. *Survey*, May 15, 1923.

Educational Tendencies in Britain

On both sides of the Atlantic there is an encouraging awakening to the need for a changed atmosphere in the medical school. Three recent addresses by American authors¹ have forcibly emphasized the importance of the preventive viewpoint which is still so commonly lacking in the training of the medical student—and now from Sir George Newman, chief medical officer of the Ministry of Health and of the Board of Education of Great Britain, there comes an admirably clear and convincing statement of the same point of view.²

With certain of Sir George's specific recommendations in regard to the content and spirit of the medical curriculum we are not here directly concerned, although the following four major conclusions are strikingly in accord with the best tendencies of the moment in America.

(1) The necessity of integration of chemistry and physics into physiology and pathology, of physiology and pathology into medicine, surgery and obstetrics, of the laboratory into clinical study, of the science into the art—that each of these aspects shall be taught in principle and not overburdened with detail, in such a way as to allow the student to reflect and comprehend and grow—this is the first and fundamental requirement.

(b) Secondly, clinical study must remain the sheet anchor of English medical education and must be strengthened both in technic and understanding. The student must be so trained as to be able to stand alone in clinical skill and judgment.

(c) A plea for a lightening of the load imposed by examining boards; and

(d) Emphasis on the importance of the organization of postgraduate courses for advanced or special studies, "refresher" courses.

The part of Sir George's report which is of particular moment to the readers of THE NATION'S HEALTH is that which emphasizes the part to be played by preventive medicine in private practice and the importance of special advance training for the professional public health worker. The medical practitioner, as he says, "is and must remain, not only one of the principal interpreters of prevention to his patients and to the public, but he himself should be a discoverer and practitioner of prevention." The physician must therefore be soundly trained not only in personal hygiene, "strangely neglected in medical schools," and not only in the etiology of disease but in the place and purpose of sanitation in a hygienic environment and in an evaluation of the effect on health and disease of social evolution. The General Medical Council, which has just prepared a

new curriculum, recommends that the subject of preventive medicine "should be a pervading influence all through the curriculum, affecting every subject in it, so that the student naturally and almost unconsciously adopts in his daily practice of medicine the attitude and spirit of scientific prevention. He acquires a ready preventive habit. As Horatio says in Hamlet, 'Custom hath made it in him a property of easiness.'"

"First, therefore, of the ways and means of teaching preventive medicine is for teacher and pupil to see the subject as it really is, and not as it appears to be. No man can understand prevention without regard to the science and art of medicine. The first step in the study of this subject is to give it a correct setting *among the clinical subjects*, for there it belongs. It borrows from the basic sciences and acts upon internal medicine, surgery, and obstetrics; and it lends inspiration to them all. No longer is it to be considered a Cinderella, no longer a mere appanage of the curriculum, no longer 'drains' and a nuisance. It has become the *ultimate* purpose of the whole."

Dr. Fred Banting of Canada read in a surgical journal of the effect of tying the pancreatic ducts. From this article his physiologically trained mind

conceived the idea that a properly prepared extract of the pancreas, freed of its digestive action, would prove beneficial in the treatment of diabetes in man. Dr. J.

Insulin: Its Field of Usefulness

J. R. Macleod, professor of physiology at the University of Toronto, and long a student of diabetes, became interested; the idea was experimentally tested in the laboratory and in a surprisingly short time results of the utmost importance were announced. A patent extract was made; it was called insulin. This in brief is the dramatic story of one of the most sensational episodes in modern medical history.

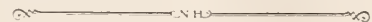
The relation of the pancreas to the disease, diabetes mellitus, has been known for over thirty years. Experiments on dogs have shown that removal of the pancreas resulted in diabetes and that the severity of the resultant diseases depended mathematically on the amount of pancreas removed. Despite many attempts to carry this knowledge into the field of therapeutics, and despite the fact that pancreas extracts were made and used on man at least as early as 1908, no investigator up to Banting carried the matter to the logical conclusion. To Banting, then, belongs

¹ I. Dodson, John M. Jour. of the A. M. A., January 6, 1923, Winslow, C.-E. A. Am. Jour. of Public Health, May, 1923. Haythorn, S. E. Jour. of the A. M. A., March 31, 1923.
² Newman, Sir George. Recent Advances in Medical Education in England. Ministry of Health, 1923.

the credit for the discovery; and to "The Toronto Group" the glory for their vision, their painstaking care in the animal experiments, and their early generosity in sharing their knowledge.

Already insulin has been used in a sufficient number of cases to permit an evaluation of its usefulness. It is definitely not a "cure"; its discoverers have never claimed it to be a cure. It has the power of allowing the diabetic organism to burn sugar, thus causing urinary sugar to disappear, and blood sugar to drop to normal. Properly given, it will bring patients out of diabetic coma; it allows surgical operations on even the severest diabetic. In children it has a particular field of usefulness in permitting development and growth where formerly the course was steadily down-hill to death.

But despite the brilliant results which all students of insulin confirm, it must be remembered that it has potency for evil as well as for good; in this respect differing in no way from morphin, digitalis or other powerful drugs. Given in overdoses it may produce "tremblings," convulsions, or even death. It should not be used without careful control of the diet. So far its value has been demonstrated only when given hypodermically daily, in doses large enough to control the sugar excretion without producing toxic reactions; and as yet no one has found that the effects of insulin persist when its use is discontinued. In brief, it is a powerful agent for good when properly used and when steadily used. The effect it already has had and will have on the health of the community is not difficult to estimate. If there are more than half a million diabetics in the United States (as one author has stated) it will mean that health and economic efficiency will be restored to a large mass of population—a result hard to measure in mere figures and yet as promising in its prospects as has been the practical elimination of typhoid fever.

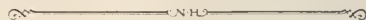


Announcement has been made of the retirement of Dr. S. Josephine Baker as director of the Bureau of Child Hygiene of the Department of Health of New York City. In 1922 Dr. Baker completed twenty years of service in the Department and in retiring from active service she leaves a remarkable record in the efficient and well organized Bureau of Child Hygiene, through whose work the health of the children of city and state has improved so

A Child Hygiene Pioneer

greatly. This bureau was the first one of its kind to be established in the United States and Dr. Baker was its organizer and has been its director since it was started. It has served as a model upon which all similar work for child health has been formed. At present forty-four states and practically every city of importance have organized bureaus of this type. When the Bureau was started in New York City in 1908, 144 babies died each year out of every thousand born. Last year only seventy-five babies died out of every thousand born and, as a result of this work, New York has had for several years the lowest baby death rate of any city of its size in this country or in Europe.

Last year Dr. Baker received the honor of being appointed as a representative of the United States on the Health Committee of the League of Nations. She is consultant in Child Hygiene to the United States Public Health Service and the New York State Department of Health. She is also a member of the faculty of Columbia University and of New York University as well as the author of various books and articles on child welfare. It is to be hoped that in retiring as director of the Bureau of Child Hygiene, Dr. Baker will be able to devote more of her time to work in other fields and thus extend her interests and influence. She has proved herself a public servant of a type only too rare in any country and we shall count on her unofficial leadership in the field of public health for many years to come.



Comby's figures on the rate at which tuberculosis is found in children less than two years of age are thought-arresting. Comby records no

Tuberculosis in Childhood

cases occurring before the age of one month; 2.5 per cent of his cases occur between the age of one and two months; 3.33 per cent between two and three months;

15.15 per cent from three to six months; 25.86 per cent from six to twelve months; and 46.05 per cent between twelve and twenty-four months.

Hoffa since 1919 has made it a routine to do a Pirquet reaction on all children admitted to the hospital at Barmen. These children belonged almost exclusively to the poorer classes and perhaps give a higher tuberculosis rate than would a cross section of the infantile tuberculosis rate of the entire community. Children giving a negative reaction were re-tested after a few days and if the negative results still persisted, an intra-

1. Klin. Woch. 1, 1922, p. 885.

dermic reaction test was applied. Hoffa's results from May, 1919 to December, 1921, inclusive, are as follows:

Age	Percentage positive
0—3 years	25.7
4—6 years	39.9
7—10 years	50.5
11—14 years	63.1

In comment on these results², it is pointed out that these figures do not parallel those published by Sanders for the city of Dortmund but are a little higher because Hoffa did not, like Sanders, subtract the already proved cases of tuberculosis. The figures of Umber for Charlottenbourg and of Moro for Heidelberg are about the same. Hoffa believes that practically all of the children in large cities are infected by the tubercle bacillus. He has made similar studies, but by the cutaneous reaction only, in many other institutions for children and with about the same results, if it is assumed that the intradermic tests give percentages about ten or fifteen per cent higher than those made cutaneously.

Familial contagion is the dominant factor in a large proportion of cases and, as might be expected, a tuberculous mother is far more dangerous in this respect than is a father having tuberculosis. Thus L. Ribadeau-Dumas³ states that the mortality of children with a phthisical mother is 33.5 per cent while among those having a tuberculous father only, it is 14.7 per cent. Indirect infection by articles contaminated with tuberculous sputum is always possible but probably does not play any great rôle as compared with direct contact with an active case of tuberculosis. The use of unpasteurized milk is obviously the most frequent source of cases of the bovine type.

Rivadeau-Dumas believes that the incubation period is relatively short, roughly about thirty days, and that the progress of the disease depends to a certain extent upon the age at which the child is infected and the size of the dose which he receives. He suggests that a single dose is more harmful than the same amount in small divided doses; in fact, the latter (which unfortunately cannot be controlled) may have an immunizing effect. Children infected before the third month almost invariably die; under one year, the mortality is stated to be 86 per cent from one to two years, 10.8 per cent; and from two to three, 2.7 per cent.

It seems as if the foregoing facts indicate fairly definitely that the point of election in the prevention of tuberculosis is the period of childhood. Since the origin in the bulk of cases is familial, every effort must be made to isolate infants from open tuberculosis cases, whether other children

or adults. To do this effectively, it is first necessary to know where these cases are, then to determine whether or not they are in contact with children, particular attention being paid to infants. It should be recognized that the open case of tuberculosis is a menace to society, since it is dangerous to the oncoming generation, and society should provide the means and the authority whereby children may be taken out of such an environment or the tuberculous person is removed therefrom. Naturally, this will at times be very hard to accomplish. Economic conditions, sentiment and prejudice will all be interposed, but they should never be allowed to stand in the way. Institutions must be provided for children removed from a tuberculous environment, and funds supplied for the support of families from which the tuberculous wage earner is removed or from which the tuberculous mother has been taken. Every endeavor must be made to protect the health of the children left behind.

As an element in this policy, every infant coming under the observation of a physician should as a routine be given a Pirquet reaction test, since the clinical diagnosis of tuberculosis in nurslings before extensive involvement has occurred is so exceedingly difficult.

In a recent communication Lee and Van Buskirk¹ review a long series of proposed physical tests for diurnal fatigue and find that none of the cardiovascular constants studied, nor the Ryan skin reaction, nor the Flack and other respiratory tests, nor the resistance strength test of Martin, is sufficiently

delicate to detect the physical fatigue resulting from a fourteen mile walk. Their study indicates some very interesting though slight differences between the average cardiovascular states of fatigued and unfatigued groups but reveals no constant significant differences between the fatigued and unfatigued, in the individual case.

No sooner are old tests for fatigue discarded than new ones make their appearance and a particularly interesting and suggestive contribution to this subject has just come to us from Belgium². It depends on what is known as the "illusion of equal weight," the tendency of the normal individual to assume that of two objects really equal in weight the smaller one is heavier. In the use of the test which is based on this fact a small ball

New and Old Tests for Fatigue

2. *Bul. Office International d'Hyg. Pub.*, xv, 1, 116.

3. *Jour. de Med. et de Chir. Prat.*, December 28, 1922, p. 885, and *Brit. M. J.*, 3241, February 10, 1923.

1. *American Journal of Physiology*, Vol. 63, p. 185, 1923.

2. *Ley. Bulletin de l'Académie Royale de Médecine de Belgique*. V Series, III, 65.

of constant weight is taken and the subject is given a series of large balls of varying weight to select the one which seems equal to the small one. Both hands are used, the balls being passed from one to the other freely. The conclusions drawn, illusory though they may be, represent a rather complicated neuro-muscular response; and, when the illusion decreases, the greater accuracy in estimating the weight of the balls indicates a less perfect functioning of the bodily reactions, even though it does lead to more correct results. Dr. Ley finds that the illusion of weight is quite definitely decreased by the ingestion of 25 grams of alcohol in the form of cognac and that it is also quite definitely decreased by fatigue, results in regard to the latter point having been obtained by comparing reactions of nurses on night duty with the same nurses under ordinary conditions. Whether this test for fatigue and for the effect of alcohol will succumb to further criticisms, as have so many other similar tests, remains to be seen.

The statistical studies of Drury¹ and Hoffman² have shown that the inhalation of silica dust is in some way responsible for a high rate of mortality from tuberculosis.

Studies on Pneumo- koniosis

But statistical studies obviously cannot supply the information necessary for the solution of this problem. The problem of dust inhalation and industrial tuberculosis is now beginning to receive the attention it warrants from the laboratory worker.

The studies of Mavrogordato³ in England and of Gardner⁴ at the Saranac Laboratory have clearly shown that the inhalation of silica dust by laboratory animals renders them more susceptible to tuberculous infection and that, once infected, the lesions tend to clear up less rapidly than do the lesions in undusted animals. Statistical studies in the marble industry have failed to associate this industry with a high tuberculosis rate. Recent laboratory studies⁵ on the inhalation of marble dust indicate that the reason for its harmlessness lies in the fact that this dust is in a large measure

soluble in lung tissue. This suggests an explanation as to why workers in the marble and lime industries do not suffer such high mortality rates from tuberculosis as do those engaged in atmospheres charged with silica dust. Coal dust inhalation among miners has in general been associated not with an increased rate from tuberculosis, but rather with a rate lower than that found for all occupied males. The reason for this has until recently been lacking. By the work of Willis⁶ we now learn that after guinea pigs are exposed to coal dust in large quantities even over a period of one year, less dust is found in their lungs than is found in normal, undusted laboratory animals two or more years old. It would appear that the inhalation of large amounts of coal dust sets into motion some mechanism by which the dust is eliminated as rapidly as it enters the lung tissue. A complete explanation for this phenomenon is still lacking. A contribution which probably has an important bearing on this process has been made by Fenn⁷. Working with carbon and quartz dust he found that carbon was ingested approximately four times as readily as quartz dust. It is conceivable, reasoning from this, that the carbon dust is brought to the trachea and later expectorated whereas silica remains in the alveoli.

The British workers have proceeded along different lines in their investigation of this subject. Recently Cummings⁸ has shown that silica dust destroys the action of complement in vitro. Gye and Kettle⁹ of the National Institute for Medical Research of London have attacked the problem somewhat more directly than Cummings. These authors have shown that the subcutaneous injection of silica and tubercle bacilli simultaneously gives rise to lesions of longer duration than those produced with the tubercle bacillus alone. They explain this end result by saying that silica is a cell poison which breaks down the cellular defenses and permits the tubercle bacillus to proliferate. It is significant that these workers have obtained practically the same results with carbon as with silica dust. It would seem therefore that for the present at least the findings of Fenn constitute the most tenable explanation for the differential behavior of carbon and silica dusts in the causation of industrial tuberculosis. It appears that silica dust cannot readily be removed from the lung, it accumulates in this organ as a foreign substance, and interferes with the normal defense mechanisms of the lung.

1. Drury, W. H., *The Incidence of Tuberculosis Among Polishers and Grinders in an Axe Factory*, U. S. Pub. Health Rep., XXXVI, 5, Feb. 4, 1921, pp. 159-178.

2. Hoffman, F. L., *The Problem of Dust Phthisis in the Granite Stone Industry*, Bull. 203, U. S. Bureau of Labor Statistics, Washington, D. C., May, 1922.

3. Mavrogordato, A., *Experiments on the effects of Dust Inhalation*, *Journal of Hygiene*, cvii, 4, October, 1918, pp. 439-453.

4. Gardner, L. U., *The Relatively Early Lesions in Experimental Pneumokoniosis Produced by Granite Inhalation and Their Influence on Pulmonary Tuberculosis*, *Am. Rev. Th.*, vi, 10, December, 1920, pp. 734-755.

5. Gardner, L. U., and Dworski, M., *The Relatively Early Lesions Produced by the Inhalation of Marble Dust and Their Influence on Pulmonary Tuberculosis*, *Am. Rev. Th.*, vi, 9, November, 1922, pp. 782-797.

6. Willis, H. S., *The Influence of the Inhalation of Coal Dust on Tuberculous Infection in Guinea Pigs*, *Am. Rev. Th.*, vi, 9, November, 1922, pp. 798-812.

7. Fenn, W. O., *The Phagocytosis of Solid Particles*, III, Carbon and Quartz, *Jour. Gen. Physiol.*, iii, 5, May, 1921, pp. 575-593.

8. Cummings, S. L., *The Antibacterial Properties of Colloidal Silica*, *Brit. J. Exper. Path.*, iii, 5, October, 1922, pp. 237-240.

9. Gye, W. E., and Kettle, E. H., *Silicosis and Miners' Phthisis*, *Brit. J. Exper. Path.*, iii, 5, October, 1922, pp. 241-251.

Year's Progress of Mansfield Demonstration

AT THE close of its first year of activity the Child Health Demonstration of Mansfield, Ohio, held an official opening of its home offices on January 20, 1923. The object of this open house was to show to the citizens of Richland County the extent to which the demonstration had developed during the year just passed.

The origin, policies, and preliminary steps that were taken to place the demonstration on a sound working basis have been described by Dr. Walter H. Brown in an article contributed to THE NATION'S HEALTH in September, 1922.

The work of the medical service of the Child Health Demonstration, carried out through health centers and consultation service, is under the direction of Dr. J. Hart Davis. Since July 5, 1922, there has been a steady increase in the enrollment of well children in the health centers of the county until it now totals 374. During this time 962 visits have been made to the centers by these children.

Through these centers the following services have been offered to the public: (1) weighing, measuring and physical examination of children; (2) discussion and advice on diets, habits, and hygiene; (3) formulas for infants with the understanding that the family physician does not object to such service; (4) distribution of printed diet slips for children of various ages over one year; and (5) a consultation service by which any physician, or any family through their physician, can secure free of cost the services of the director of the medical department.

No attempt is made by the department to force their services, and none is given unless requested or permitted by the family physician.

The demonstration is not developing a nursing corps of its own. It is helping the Mansfield Public Health Nursing Association, the Richland County chapter of the Red Cross, and the Shelby Health League to develop a county wide nursing service. Under the direction of the family physician care is being given to expectant mothers; assistance given the doctor at the time of the delivery; and the care of both well and sick

the physician make the examination. Signed consents were shown by 60.25 per cent of the children and 14.7 per cent had a parent present at the examination. Last fall the nurses began their regular school work and before January 1, made 5,481 inspections.

One of the major projects of the demonstration is health education, and through the cooperation of the educational authorities, teachers, and

parents ways are being worked out to make health habits attractive to children. Health is being taught through different subjects in the curriculum and by such direct measures as institutes, conferences and lectures. The "Rules of the Game" and the Junior Health Department are already stimulating children to better health habits.

A most successful health institute was held at the high school September 5-8, 1922. A pageant, entitled "Happy,

the Pied Piper of Healthland," written and directed by Mrs. Ethel Beard-Barrett then director of health education, was given by two thousand children at the county fair. Miss Elma Rood is the present director of this department.

Monthly weighing and measuring, physical education in school hours, group athletics on the playground, and competitive athletic meets at the end of the school term are other activities along the line of health education.

The nutrition department, under the direction of Miss Edna C. Endly is furnishing assistance assuring every child an adequate school lunch. In Mansfield and the other high schools complete lunches are served, and in the rural schools "one hot dish a day" is rapidly becoming popular.



Corps of nurses from Demonstration leaving headquarters to go on daily mission.

children from birth to adult life.

All first calls for the bedside care of ill persons are answered by a nurse but a patient is not revisited unless a physician is in charge.

Under the direction of Miss Helen F. Boyd the nursing force of the county has been increased. There are now seven nurses in Mansfield who made 8,316 visits during the past year, and three nurses in the rural area made 3,102 visits. Two nurses are employed in Shelby. A new set of nursing records were installed on April 20, 1922.

Health examinations were begun in the third and fifth grades of both the public and parochial schools. In the examination of 1,119 children the provision was made that the written consent of the parents or their presence would be necessary in order to have

In cooperation with the Federation of Women's Clubs, the nutrition service aids in serving milk to children who are ten per cent or more underweight. During the past year seven hundred such children have received such additional nourishment twice daily in the public schools. Home economic courses in the high schools and mother's classes teach proper food selection and preparation. In the classes held for mothers special attention is given to the nutritional needs of the child.

The human book-keeping of the Child Health Demonstration is carried on by the research department of which Miss Emma Duke is director. It is interested in just how many children in the community are healthy and in any conditions that may influence their health. It is engaged in measuring the effect of the work being done by the demonstration; in ascertaining what benefits are derived from the nursing service. It seeks to determine if health education does improve the health habits of the child, and if it is worth while to give milk to underweight children in the schools. By answering these questions the community will have a basis for judgment in determining which activities it wishes to continue when the demonstration is completed.

Life Insurance Medical Examinations

In an address delivered at the sixteenth annual meeting of the Association of Life Insurance Presidents in New York City, December 7, 1922, Dr. Augustus S. Knight, medical director of the Metropolitan Life Insurance Company said that heart disease, Bright's disease, and cerebral hemorrhage reduce the life span a total of about four years.

An extract from Dr. Knight's paper on "Life Waste in 1922—Its Warning and its Lesson" follows:

The insurance medical examination puts into our hands an opportunity for health service which we have not developed at all. Every year the records of our companies show from 7 per cent to 10 per cent of applicants rejected or postponed for insurance. These persons show at examination all types of disorders and impairments. All of them are important, and a large number are remediable under proper care. Each year, of the persons rejected for insurance about 15 per cent, the figure varying somewhat from company to company, have indications of incipient or advanced nephritis. Five per cent of the rejected persons are either diabetics or are judged likely to become such. Over 10 per cent have suspicious respiratory signs, or have active respiratory disease. About a quarter of them have

one type or another of heart impairment. A small proportion, indeed, are of such generally low physical grade as to warrant rejection, although lacking in any particular outstanding organic impairment. It is our experience that a goodly proportion of these applicants are absolutely unaware of what is the matter with them, and learn for the first time of the existence of the impairment when the notice of rejection reaches them. Consider what it means for a person who has in good faith asked for insurance, to be told that it is not available to him because he is suffering from one or another disease. That man's attitude is often one of angry disappointment, but his second reaction is one of inquiry into his state of health and of determination to do all within his power to make himself physically fit.

The psychology of the situation is entirely a favorable one for performing constructive, remedial work. Yet, in spite of that, most of us do hardly anything to assuage the disappointment of the individual or to help him get well; perhaps we incur his resentment. In any event we *waste* an opportunity for making a friend and well-wisher out of him. We should, I believe, work out a way of informing rejected and postponed applicants of the causes for rejection or postponement and in every case where we can safely do so and by that I mean every case where the medical findings are so positive and indisputable that disclosure would not involve opposing opinions and consequent persecutions of the local medical examiner following discussions with the family physician and applicant—a situation that must always be avoided. We might, too, carry through our stroke and suggest that he place himself under proper medical supervision and give him reason to believe that he may become insurable in the future. I am convinced that the time is ripe for our companies to lead the way in suppressing this prevailing waste of opportunity for signal public service, and to work out a method by which the valuable information on the applications can be made available to the rejected and postponed applicant. This service should include, also, those persons slightly impaired who are taken on standard plans.

But this is only the beginning. Many a man is accepted who shows on the examination record evidence of some minor impairment, not sufficient to warrant rejection or to question his insurability, and yet important enough from the point of view of the individual's welfare and of his family to justify intelligent, effective follow-up, with the giving of helpful advice.

Medical examinations are an expensive part of the cost of life insurance administration. We can easily make them worth all that they cost, and a great deal more, through the simple expedient of the periodical follow-up examinations of the persons insured with us. Fortunately, this matter is no longer in the experimental stage. For a period of eight years, the Metropolitan Life Insurance Company has to an ever increasing degree encouraged its policyholders to take advantage of the opportunity to be examined periodically at

the company's expense. I had occasion last year to evaluate the results of this work and undoubtedly you are already fairly familiar with our findings. We were able to show that those who were examined in 1914 and 1915, for a period of five years following the examinations, showed a mortality 28 per cent more favorable than that for the entire Ordinary Department in the same years. We further calculated that the saving in mortality gave a return of two dollars for every dollar expended for the insurance examinations. These figures are all rough, but I quote them to show why we in our company are convinced of the value of the periodical physical examinations. When properly conducted, periodical examinations with appropriate advices, are effective as a means of avoiding life routines that lead to disease, of controlling minor impairments, of minimizing and slowing down the progress of the major ones, and of maintaining a high standard of individual health. We are more and more opening the door to our policyholders for this service, so that at the present rate we hope and expect to make 25,000 examinations in the year 1922 among Ordinary policyholders.

Kansas City Health Conservation Association

The Health Conservation Association of Kansas City has been organized as a union of the Kansas City Tuberculosis Society, the Social Hygiene Committee, the Mental Hygiene Committee, the Dental Hygiene Committee, and the Cancer Control Committee. From this representation an executive board of twelve members and the officers are elected, the separate societies serving as divisions of the larger organization. The president and the executive secretary of the Tuberculosis Society were made president and executive secretary, respectively, of the association. The organization is a part of the plan being developed through the Council of Social Agencies for the more effective coordination of voluntary welfare agencies.

New Hampshire Needs Rural Physicians

New Hampshire has passed a law effective April 5, which permits any town to raise money toward the support of a resident physician which in the absence of such appropriation, could not obtain one.

The *World's Health* reports results of the recent comparisons by countries of per capita consumption of opium as follows: Italy, 1 grain; Portugal, 2.5 grains; France, 3 grains; Holland 3.5 grains; the United States, 6.3 grains.

Health and Physical Education in the Schools*

Report of Surveys Made By Chambers of Commerce of the United States

IN OCTOBER, 1921, the civic development department of the National Chamber of Commerce issued in its series of pamphlets on "The Schools of Your City," one on the subject of school buildings and equipment, and in May, 1922, one on health and physical education. With these pamphlets there were sent to chambers of commerce, question blanks to guide education committees in making surveys of the elementary schools in their community.

Up to the time this is written sixty-one cities have sent into the National Chamber their findings on school buildings and equipment and 160 those on health and physical education. Thirty-six sent in the results of both surveys.

Of the sixty-one cities making returns on school buildings and equipment, representing 28 states and one territory, one has a population of over 300,000; three from 100,000 to 300,000; six from 50,000 to 100,000; seven from 25,000 to 50,000; thirteen from 15,000 to 25,000; six from 10,000 to 15,000; thirteen from 5,000 to 10,000; and twelve below 5,000.

The number of schools examined in the 61 cities was 701. Of 579 buildings of which the date of construction was reported one school was built prior to 1840; two between 1840 and 1850; three between 1850 and 1860; twenty-three between 1860 and 1870; forty-nine between 1870 and 1880; seventy-nine between 1880 and 1890; ninety-four between 1890 and 1900; 124 between 1900 and 1910; 142 between 1910 and 1920; and sixty-two between 1920 and 1922.

These figures raise the question as to the proper life of school buildings throughout the United States, particularly as experts state that the average life of school buildings in the United States is not over thirty years. Within the past few years there have been advances in knowledge concerning proper lighting, ventilation, sanitation, fire prevention, and artistic design which have caused many communities to abandon school buildings

structurally sound and usable and erect in their places others which conform to modern standards. The life of school buildings erected from now on should be much longer than those of an earlier period if the proper attention is paid to essentials at the time of erection. Some of the more important of these follow:

(1) Location of the school building in the proper relation to the general city plan and trends of population.

(2) Sufficient school grounds for adequate play space, light and ventilation covering possible future additions as well as present needs.

(3) Provision for future additions which will not interfere with good design, light and ventilation.

(4) Adequate lighting, fire resistive materials, etc., so that even if it becomes necessary at a later time to change room arrangements the general structure of the building need not be changed.

(5) Architectural design of simple, effective type.

Pupils to a Room

Thirty-three per cent of the rooms examined contained 40 or more pupils; 5 per cent contained 50 or more and several rooms were reported having from 70 to 100 pupils. The maximum limit of capacity of a class room should be 40, and 35 is a more desirable number. In school rooms containing more than 35 the individual attention which can be given to each pupil is not adequate for good results.

Out of 647 schools examined it is stated that in 571 attention is paid to the proper seating of pupils. It is impossible to gather from the data given in answer to the questions as to type of desks and seats how many are adjustable to the size of the pupil. Adjustable desks are essential. There are cases of crooked spine; stooped shoulders, and impaired circulation developing in the schools which must be stopped today to strengthen the future of the community.

Thirty-three buildings were found without natural, outside light in the corridors. In thirty-four other buildings some of the corridors had no outside light. Both health and safety demand that there be natural light in all corridors.

Out of 398 schools on which reports on stairways are made, only sixty-six have all the stairways enclosed in fire resistive material; 332 do not. Eighty-eight per cent of the schools have stair landings; and 85 per cent do not have sharp corners or obstructions on the stairways.

Twenty-three schools, or 5.5 per cent of all those examined as to lighting, have insufficient light in all rooms. In addition 442 rooms in various schools are reported to have insufficient light. Forty-six rooms have windows children must face. In eight schools all the rooms have cross lights and, in addition, in 641 rooms there are cross lights. When in a comparatively small number of schools—and these in the more progressive communities—so much unsatisfactory lighting exists, it is easy to imagine the damage being done yearly in the eyes of school children all over the country.

Approximately 23 per cent of the schools investigated were found to have unsatisfactory ventilation. Of the total number of 629 schools reporting on this question windows were used for ventilation in 203, artificial ventilation in 382, and both systems in 44.

Health Education

The means of providing proper ventilation in school rooms is a matter which is still under sharp discussion by experts. There can be no discussion, however, of the desirability of having a constant supply of fresh air in every class room. In some class rooms where school has been in session for two or three hours the odor is stifling. Can the effect be anything but detrimental to the health and mental alertness of our children?

The toilet rooms in 554 schools were found to be adequately lighted; those in 41 were not; five hundred thirty-five buildings were found to have adequate ventilation in the toilet rooms and 49 had not. Seventy-five per cent of the toilets were in the main building; 25 per cent in out-buildings. Of 603 schools examined, 470 use sanitary flush toilets; 108 sewer connected vault; 8 cesspool, and 17 privy.

Of the 160 cities making returns on health and physical education; ten

*Condensed from progress report on Surveys of School Buildings and Equipment, Health and Physical Education in the Schools made by Chambers of Commerce in cooperation with the Civic Development Department, Chamber of Commerce of the United States.

have a population of over 300,000; nineteen from 100,000 to 300,000; 26 from 50,000 to 100,000; twenty-three from 25,000 to 50,000; twenty-eight from 15,000 to 25,000; eighteen from 10,000 to 15,000; twenty-two from 5,000 to 10,000; and fourteen below 5,000. These cities represent forty-six states, the Philippine Islands, the District of Columbia, and Alaska. The total number of pupils in the elementary schools of these cities is 3,018,896.

In 62 of the 160 cities all the children are given a medical examination upon their admission to the schools. In 98 of the cities no such examination is given. The cities from 50,000 to 100,000 make the best showing, 61 per cent giving the medical examinations. The worst showing is by cities between 15,000 and 25,000, only 25 per cent giving examinations. The approximate percentage of cities of the other classes giving examinations is as follows: below 5,000, 29.5 per cent; between 5,000 and 10,000, 53 per cent; 25,000 to 50,000, 30½ per cent; 100,000 to 300,000, 37 per cent above 300,000, 33.3 per cent.

Many Schools Have Physicians

One hundred three of the cities included in this survey have school physicians and fifty-four do not. More than one third of the cities below 5,000 do not have school physicians, but in the classes above 5,000 the proportionate number of cities having physicians does not vary greatly.

About 9 per cent of the physicians employed in the schools of these cities are on full time and 91 per cent on part time. Ninety-three of the cities have dental clinics in the schools and sixty-six do not.

One hundred thirty-five of the cities have school nurses and 23 do not. The maximum number of pupils whom a nurse can look after with any degree of thoroughness is 3,000; two thousand is a much better number. The average number of pupils to each nurse in cities which employ only one nurse is 2,825 and in cities employing two or more 3,037. The greatest number of pupils to one nurse is 17,835 in a western city—the smallest number is 350 in a community of 1,977 in Pennsylvania.

A number of the cities which do not have school physicians have school nurses. Either nurses or physicians regularly inspect the children for defects or incipient illness in 132 of the 160 cities.

In 39 out of 160 cities no instruction is given in the care and use of

the eyes. In the other cities instructions are posted in the school buildings or studied in the class rooms. Rules for the proper use of the eyes have been prepared by the department of education in one state—these rules are posted in the class room or on the corridor bulletin board.

Forty-one cities report that they have open air schools or classes, and a number of other state that they will establish this system in the near future. The fresh-air movement in the schools is growing and its vital importance is more and more realized.

Supervised Play

In answer to the question, "Do the schools all have adequate playgrounds?" Ninety-one answer no, and sixty-eight yes. The smaller cities have of course the best showing. Of those under 5,000, 71 per cent report that all their playgrounds are adequate; those from 50,000 to 100,000 only 30 per cent have adequate grounds, and in those above 300,000 the percentage falls to 11. Fifty-four of the cities have no supervisor in charge of the play grounds.

In 102 of the cities scales are provided in all the elementary school buildings and in 56 they are not. Only thirty-four cities send home the child's weight record on the monthly report card.

Pupils can be interested in building up strong, well nourished bodies. They must, however, have the proper facilities so that they may note their progress.

Thirty-two of the cities provide a hot lunch or hot dish for each child in the elementary schools. Eight have milk available for all the children morning and afternoon; two provide it in the morning; 94 have milk available for the undernourished children.

The malnourished child is retarded physically and mentally so that he does not have a fair chance in life. A hurried breakfast and a cold "box-lunch" eaten at the school are not conducive to health building, and nutrition experts agree that the child should have milk in the middle of the morning, a hot lunch or hot dish with the lunch at noon, and if possible some nourishment in the middle of the afternoon.

In the public schools of 133 cities time is allowed each day for training the children in the establishment of proper health habits and in twenty-six no such training is given. This training includes tooth brush drills, breathing exercises, instruction in dietetics, personal hygiene, etc. One hundred forty-eight cities have a program of

general health education which reaches every child in the elementary schools and 11 do not.

The impression given by the reports from the cities examined (which are among the most progressive in the United States) is that although commendable progress has recently been made in bettering school conditions, we do not yet fully appreciate the fact that the health of the oncoming generations is a priceless asset to the community.

The most significant elements in the reports are these: (1) The increasing number of cities maintaining open air schools or classes thus salvaging imperfect human material and converting it to a high grade product. (2) The increasing number of cities providing milk for the undernourished school children. (3) The increasing number of cities providing a hot lunch or a hot dish for all the elementary school children.

Two facts which merit careful consideration are: (1) The absence of medical examination before children are admitted to the schools. (Less than 40 per cent of the communities take this essential precaution to safeguard the health of the community.) (2) The lack of adequate playgrounds where all the children can add to their store of health and strength. (Only 42 per cent of the cities claim adequate facilities.)

Other significant facts are these: Sixty-five per cent of the cities have school physicians; about 60 per cent have dental clinics; and about 85 per cent have school nurses.

The steady increase in dental clinics and school nurse systems in the past few years has been among the notable developments in American schools.

If the school health work is to function properly it is certain that there must be proper contact between the health officials and the parents. Evidently there is not such contact as only about 20 per cent of the schools send weight records home with the monthly reports.

The reports on buildings and equipment show us that not enough attention has been paid to erecting the type of building which will stand the test of years; that we are not giving our children a square deal in not protecting them from fire; and that many communities tolerate defects in the school building which make for impaired eyesight, weak lungs, and the spread of disease.

Among the elements being developed in the communities which have the most modern school systems are:

Properly planned buildings rightly located and surrounded by adequate open spaces; efficient health organization, including school physicians, den-

tists, and nurses; thorough medical examination of all children before admission to school; provisions for nourishment not only for malnourished but

for all elementary school children; outdoor classes and schools; and health instruction and supervised play.

Survey of Child Labor Conditions in Sugar Beet Fields

SUGAR beet farming produces an intensified crop requiring a large amount of hand labor, thus inviting extensive employment of children. Because of the control of the industry in comparatively few hands, with production and distribution on a factory basis, with contracts let out to farmers, payment on a piece-work basis and intimate direction of the work by supervisors and foremen engaged by the sugar companies, the sugar beet industry is in reality a factory industry, although its factories have neither roofs nor walls.

The purpose of a recent study of Child Labor in Michigan Sugar Beet Fields was to determine whether the work done by young children in the beet fields is detrimental to their health, their education, or their fitness for citizenship. With this end in view, a survey was made, not so much of the industry itself as of the relation of the industry to the employment of children. A synopsis of this investigation is contained in the March issue of *The American Child*.

The period of the survey was from May to November 25, 1922 when three agents of the National Child Labor Committee were in the field continuously except for the month of August. This field covered 12,804 acres in the "Thumb" and Saginaw Valley sections of Michigan, or about 20 per cent of its total acreage devoted to sugar beet cultivation.

The workers in beets consist of three classes: (1) farm owners who contract with the sugar companies to raise beets, and are called "growers," (2) farm renters who do the same, also called "growers," (3) contract labor families who engage to cultivate the beets for the first two. It is from the latter class that we get the "migratory" families, who follow the beet crop season after season, going into the fields when the season opens and remaining until the harvest. These families choose work in the beets for the reason that they may thereby find employment for their children in agriculture, which

is denied them by child labor laws prohibiting the labor of children under fourteen in factories or workshops. It likewise follows that preference in the matter of employment is given by



National Child Labor Committee
A girl of six pulling beets in Michigan.

growers to families of contract laborers who have large numbers of children, since there is a definite relation between the number of acres that can be cultivated and the number of children in the family.

The committee's agents visited 407 grower families and 274 contract labor families; also 115 schools attended by the children of these families from which were obtained attendance records of 5,581 children. Teachers in 53 other schools furnished the records of 1,444 other children of similar age for purposes of comparison.

In the 681 families visited there were 2,116 persons 5 to 20 years of age, inclusive, of whom 1,565 (73.9

per cent) worked in the beets. Of these, 1,358 (86 per cent) were children under 16 and over 5. Eight hundred were from contract labor families; 100 from families of renters; 458 from families of farm owners. The children under 16 at work in the beet fields comprised 49 per cent of the total number of available workers in these families.

Some of the labor necessary in the cultivation of beets is extremely arduous and the heavy knife used in "topping" is dangerous in the hands of unskilled children.

Owing to the shortness of the season and the danger of damage from frost, work is forced throughout the summer months regardless of weather conditions. Workers are in the fields by day-break and remain until dark, sheltering themselves as best they can from rain in summer and from sleet and snow in early fall.

Housing conditions among contract workers vary, but they are often of the poorest kind. Sanitary conditions are far from good and overcrowding is common. Some of the sugar companies provide company houses. These are sometimes on wagons so that they can be moved from field to field. The most common dwelling is the cheaply built shanty. In one instance a family of ten people lived in a one-room garage from May to October. A family of six lived in a tar-paper shanty located in a mud-hole.

Of the 894 children of the migrant families studied, eight hundred worked in beets.

Of the total of 1,358 children from all families under observation, 685 were found to be engaged in "blocking," "Thinning" and "weeding" follow almost immediately so that frequently a child worker and an older hand work together. Often a parent does the blocking while two children follow with the thinning. A total of 1,335 children were engaged at one time or another in "thinning," 1,336 in "pulling," and 1,286 in "topping."

The relationship of the number of

children in a family to the number of acres cultivated is definite. The 558 grower children helped to cultivate 2,252 acres and the 800 contract labor children worked 8,371 acres. That the number of acres a family can contract to work depends upon the number of children in the family, is shown by the following table, which includes all people under five years of age.

No. of persons in each family	Average number of acres of beets worked per family
2	14.3
3	19.4
4	24.1
5	26.8
6	31.4
7	37.7
8	45.3
9	47.2
10	68.3

Of the 5,581 children whose records were obtained from the local schools, 63.4 per cent lost time because of work either in beets or other forms of agricultural labor.

Nearly 70 per cent of all these child workers were in beets, Tuscola County leading with 79 per cent, the others ranging between 60 and 70 per cent.

The average school time lost was 23 per cent and of this, beet workers lost 82.4 per cent. Contract worker's children lost 63.6 per cent of their total school time; owner's and tenant farmer's children lost 29.5 per cent. Other forms of work were responsible for a loss of 21.5 per cent.

School in these regions is looked upon as an incidental luxury to be indulged only when there is no work to be done. The prevalent attitude of parents is that children should be an economic asset. "Why should I go to the expense of feeding and clothing my children and then when they get big enough to help, not get anything out of them?" asked one farmer, voicing really a prevailing opinion.

Among the migratory contract laborers this view is held even more strongly. They go to the country to work—not because it is more healthful but because they can use their children there at an earlier age than they can in city factories. Many families work in the beets only until the time when their children will be old enough to be put to work in the cities under the restrictions thus

possible under the child labor laws.

Much like this study just described is one on "Child Labor and the Work of Mothers in the Beet Fields of Colorado and Michigan," made by the U. S. Department of Labor through the Children's Bureau. The sections with which the report is concerned were chosen as representing two of the three principal beet-growing areas in the United States, the western mountain and the middle western area. In two Colorado counties 1,073 children under 16 years of age and 454 mothers, and in parts of three Michigan counties 763 children and 397 mothers doing beet-field work were included in the study. In each

were obtained worked from nine to thirteen hours daily.

Mothers working in the beet fields did so for long, regular hours, not merely at times when their household duties permitted; beet work took precedence over all other tasks. Meals were prepared and other housework performed at the expense of the mothers' sleep and rest. Many had small children but were able to give them very little care. Babies were usually taken to the fields, where they were in some cases sheltered by a tree or tent, but many fields were entirely without shade. Children 3, 4, and 5 years of age either played about the fields or were left at home, in many cases with no caretakers except other young children.

For the largest group of laborers' families in each area the season's earnings were from \$800 to \$1,000, while about half the Colorado families and less than one-third of those in Michigan earned \$1,000 or more. The value of a child's work, if he engaged in all the processes, averaged about \$200 in Colo-

rado and among the Michigan children, who were less experienced, from \$114 to \$122. It is estimated that the former, on an average, cared for 5.9 acres per child and the latter, 4.1 acres per child.

Free Vaccination Service in Montevideo

Free vaccination service for children of Montevideo (Uruguay) public schools is supplied through the dental clinics in conformity with a resolution of the Board of Education by which no child will be admitted to the schools without presenting a vaccination certificate.

Better Homes Week, observed June 4 to 10, gave thousands of persons throughout the country objective demonstration of the last word in household management and construction. Everything for the home which includes practically everything produced by the manufacturing world, was displayed in a manner calculated to induce better sanitary and health conditions in the home, and more leisure through better household administration.



A one-room shack with two partitions that houses ten persons in the Michigan sugar beet field.

section four-fifths of the working children were less than fourteen years of age and one-fourth were less than ten. A large proportion of the six and seven year old children in the families interviewed and three-fifths of the eight year olds had done beet-field work. A mother quoted as describing a common custom said that her child had worked "ever since he could lift a beet."

The work is described as unsuitable for children because of its monotonous, uneducative character, its interference with schooling, and the long hours involved in the rush work at certain seasons. During the thinning process which must be completed before the plants grow too large, 85 per cent of the Colorado children included in this study and 67 per cent of those in Michigan worked from nine to fourteen hours a day. Two-thirds of the children in each section who engaged in hoeing had a working day of 9 hours, or longer, and at harvest time, in order to get in the crop before it was caught by a heavy frost or otherwise spoiled, three-fourths of those for whom hours

A French Medical Examination Center Plan

THE province of Seine-Inférieure in France has organized a peculiarly significant chain of dispensaries with a visiting nurse staff, a preventorium for 250 children, a hospital, sanatorium, milk station, and the like. The following description of the health center plan involved in this program is taken from the first number of the first volume of the new journal, *Annales d'Hygiène Publique, Industrielle et Sociale*, which takes the place so far as public health work is concerned of the old *Annales d'Hygiène Publique et de Médecine légale*.

The public health department of Seine-Inférieure acts through the medium of organizations called medical examination centers, established in every locality where the density of population would lead one to anticipate a development of social diseases in the neighborhood. The term "medical examination center" has been substituted for the usual name of dispensary to avoid confusion and to establish the principle that the center is not to give continuous medical care, which is reserved to the family physician, but to provide advice in regard to individual prophylaxis and public health. It is a center for the detection of social diseases and for the hygienic education of the people. It is open to everyone who presents himself. Practising physicians have free access to it and may obtain the benefit for patients of limited means of all the methods of investigation and examination at the disposal of the center.

The role of the medical examination centers is defined as follows by Article 4 of the regulations of the department:

The medical examination centers approved by the department shall provide:

(1) Advice in regard to hygiene and prophylaxis to all persons who present themselves or who are re-

ferred to it by their physicians.

(2) Loans of prophylactic material.

(3) The education in prophylaxis of the families of the sick through the means of specialized personnel working under the direction of the physician of the center and placed at the disposition of all practising physicians who may require it.

(4) The benefit of the various laws in regard to aid to be furnished to all sick people and the families of the sick corresponding to the provisions established by law and regulation.

(5) Such technical examinations as

of the skin and mucous membranes.

(3) Medical supervision of maternity.

(4) Medical supervision of infants.

(5) Medical supervision of school children. These different sections are installed in the same building wherever it is physically possible to do so. In the large cities on account of material exigencies this may not be possible.

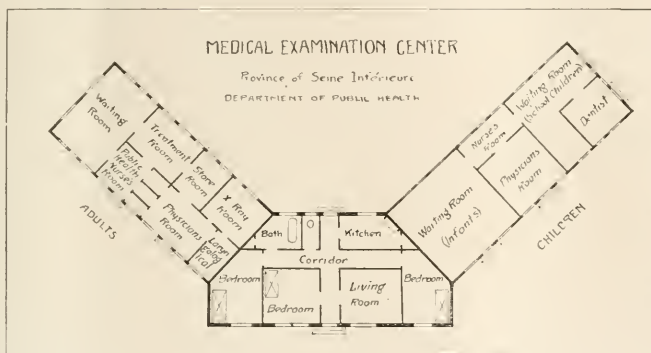
The medical examination centers tend always to approach the typical plan here presented, to be modified in details, adapted to local circumstances and realized bit by bit according to

local necessities and the resources of the moment. Each medical examination center includes in principle three entirely distinct and separate wings:

(1) A wing reserved for adults including a waiting room, the office of a public health nurse where every sick person or visitor is questioned in

privacy and may talk confidentially to the nurse who serves as the invaluable assistant of the physician; the medical office with its necessary adjuncts, the laryngological room, the radiology room and the like. The sick person here finds himself alone with his medical adviser protected from miscellaneous contacts or publicity; two small dressing rooms for the preservation of decency are interposed between the office of the nurse and that of the physician.

(2) A wing exclusively reserved for small infants, and including a waiting room provided with individual hammocks for each infant, where is carried on the collective education of the mothers by short talks given by the physician of the center; the office of the nurse; and the office of the physician; where every child is weighed, measured and examined in the presence of the mother who receives from the physician special advice supplementing the general advice already received.



may be demanded by practising physicians or recognized as useful by the physician in charge of the center.

(6) Various services of disinfection and sanitation in cooperation with the established health authorities.

(7) The distribution of various materials to individuals in need, or to members of the association established under Article 7 of the law of 1916.

(8) In addition to its usual services, and in very exceptional cases, the giving of medical care in emergencies and while awaiting the intervention of the family physician. In principle such care is reserved for the indigent and members of associations organized under Article 7 of the law of 1916. In no case shall the examination center provide directly for the continued treatment of the sick, which is always reserved for the family physician.

To reach the whole group of social diseases each medical examination center shall include five sections dealing respectively with: (1) Affections of the respiratory tract. (2) Diseases

(3) A wing reserved for the nurses.

Through the organization of its five sections the medical examination center takes the infant from its prena-

tal period, brings its gestation to a successful end and conducts it always under medical supervision, up to the end of the school period. In parallel to this medical supervision of the in-

fant, sections 1 and 2 take charge of the parents themselves so as to neutralize in them the disastrous effects of such of the social maladies as are most directly accessible.

The Cost Account of Public Health

Real Accounting Calls for Credits As Well As Debits

THE feelings of Dr. Fred Converse, county health officer, had been ruffled that morning. Bob Cator, the village gossip, had told him that Jackson Holly, a farmer whose place was near by, had been denouncing him. "He says," went on Bob; "that you and that nurse, Miss Gordon, are nice folks but that it ain't fair to tax hardworking farmers to let you lie round and do nothing."

Dr. Converse had blinked; but had answered laughingly. "Holly's a good man," he agreed. "He speaks right out and gives you a chance to answer him. If you see him before I do, Bob; you ask him to drop into my office some day with his account book, and I'll try to astonish him."

An hour later, when the doctor reached his office, he went over his records to see just what the county health service had done for Mr. Holly; and he was amazed. "Great Scot," he exclaimed. "I knew our health work came cheap; but I never dreamed that—"

He broke off as his office door opened and jumped up to welcome Mr. Holly and half a dozen others who came in, piloted by Bob Cator, who had plainly lost no time in doing as the doctor has asked.

When they were seated Mr. Holly cleared his throat. "Got your message, Doc," he said; "and came right around. Brought some folks with me as umpires!"

"Great!" Dr. Converse was delighted. His visitors were among the most influential in the country; and he had long hoped to get a chance to talk to them. "I'm mighty glad to see you all. I see you've got your account book, Mr. Holly . . . Now if Bob Cator will keep score on the blackboard—Thank you, Bob!"

"Now, Mr. Holly," went on the doctor. "Let's begin by seeing what the county health service really costs you. What health tax do you pay?"

"Pay twenty-two cents per one thousand dollars valuation. My valuation's eight thousand dollars; makes my health tax \$1.76 a year. Don't

seem much to city folks, maybe; but it's only one thing out of a lot; and it all counts up when a man's got to earn his living in the blazing sun."

"Quite true. And whether it's much or little you're entitled to know what it's spent for" . . . "Bob! Put down 'Cost' on the board and below it write Health Tax—\$1.76. Any other costs, Mr. Holly?"

"Lots of them." Mr. Holly opened his account book. "Here's the cost of those danged window screens you fellows persuaded the County to make us buy to keep out mosquitoes and that weren't a darned bit of use to us. That's an expense; all right! Course you fellows didn't get the money yourselves, but—"

"All right. What did your screens cost?"

"Fourteen dollars and twenty-four cents. That's for the house and for the annex where the farm help lived."

"All right! Put it down, Bob! To health investment \$14.25. Of course, Mr. Holly; you know the country spent as much more in oiling and draining the ponds where the mosquitoes breed. That's something you got for your health tax. But never mind! Tell me: How much did you spend for malaria sickness—medicines and doctor's bills—for the twelve months before you put in the screens?"

Mr. Holly thumbed his book. "Bout twenty dollars for doctoring and two dollars for quinin," he decided.

"All right. Now how much have you paid for the same things during each of the two years' since you put the screens in. It's been just about two years, hasn't it?"

"Ye-es. I reckon so. But—" Mr. Holly frowned and searched his book. "Paid mighty little," he admitted. "We aint had any malaria worth speaking about these two years. The mosquitoes just didn't come 'round. And so, of course, the screens didn't do us a bit of good."

"Didn't they? The mosquitoes came around all right in Alta County, right next door; didn't they?"

"Well—maybe they did, the first year, anyhow! Last year they didn't come anything to speak of."

"Wasn't that because Alta County screened and oiled and drained a year later than this county did? Isn't it fair to estimate that you would have had to pay at least another twenty-two dollars each year if you hadn't put in those screens. Alta county people paid at least that much. Seems to me that your health investment of \$14.25 has saved you two times twenty-two dollars, forty-four or \$29.75 net. And you've got your screens still. Shall we ask Bob to write down: Profit \$29.75?"

Holly hesitated. But the umpires chuckled and he agreed hastily. "Yes! Put her down, Doc," he said. "Guess that's all about those screens, aint it?"

"Not quite. How many days work did you and your men lose from malaria in the year before you put in the screens?"

Mr. Holly frowned. "Oh! Five or six days, maybe," he said. "But what's that got to do with it?"

"Everything. You paid the men, didn't you; and lost five or six days because they were too sick to work; so you lost the money. And you were down with malaria yourself that summer, weren't you? Lost some time didn't you? And even when you and the men were better, you weren't up to par so you could do a real full day's work, were you? And in the next two years you didn't lose anything like so much—from malaria? The screens, etc., saved you the difference between what you lost in each of the last two years."

Holly scratched his head. "Well, if you want to count that, I s'pose you've got a right to do it," he said. "Say, Bob! I reckon you'd better chalk down about twenty-five dollars profit from saved wages due to those blamed screens. Now, what's next, Doctor?"

"Smallpox!"

"Smallpox? There aint been any smallpox here since I came, except of course what that Stone family

brought when they refugeeed here from the west end of the state and sent their two children to school till they broke out with it two days later. But it didn't spread?"

"Why didn't it spread?"

"Well! I don't know. I don't hold much with vaccination; but I reckon it was because most everybody here, especially the school children, got vaccinated right away. But what—"

"Who vaccinated your family?"

Holly hesitated. "Well," he said; finally, "Mandy—Mandy's my wife, you know—Mandy went wild when she heard about the Stone children and she grabbed two of our children, all she could get her hands on right then, and rushed them to Dr. Morford's and had him vaccinate them. If she'd waited half an hour we could have brought them to you and got the six of us fixed up for nothing." Holly turned resignedly to the blackboard. "Bob!" he said. "Enter up \$4 to saving on vaccinations."

The umpires applauded freely; and Mr. Holly joined in, though somewhat ruefully.

Then Dr. Converse resumed. "Now about the public health nurse," he remarked. "Being a mere man, Mr. Holly; you probably don't remember how many visits Miss Gordon made to your place the first year you were here. But I see Mrs. Cator at the back of the room; and I'll ask her to tell us all about Miss Gordon's visits to her when her baby was born last spring and when her other girl was ill the fall before that. How much were those visits worth, Mrs. Cator?"

Mrs. Cator stood up. Twice she tried to speak before the words came. Then—

"I don't know," she burst out. "You ask Bob Cator how much his wife and children are worth to him. That'll be just what those visits were worth. I aint saying anything against Dr. Morford; he's a mighty good doctor, I reckon. But he's just a man, and I lived a long way from everywhere and—and—My God! When I remember that time—it was Miss Gordon's coming that pulled us through. It was having another woman around—a woman that *knew* what to do and that did it without making any fuss about it. And—and—" Mrs. Cator swung around to her husband. "Bob Cator; if you been saying anything against Miss Gordon, or against Dr. Converse either, I'll—I'll—" Helplessly she dropped into her chair.

When the umpires had gotten over their somewhat chucky and hysterical laughter, Dr. Converse resumed.

"I'll come back to health nursing after a little," he promised. "But just now I want to take up another subject." He turned to Holly. "Mr. Holly," he said, "I hope I won't offend you by what I'm going to ask. You'll understand why I do it after a little while. Won't you tell us how your children stood at school the first year after you came here?"

Mr. Holly flushed hotly. "Get offended?" he exclaimed. "No! I won't get offended. But I'm hurt a lot. It wasn't the fault of those little tykes that they didn't stand high. All four them was sick when we come down here; and it wasn't to be expected that they'd do much—"

"Exactly. Where you came from you didn't have any malaria problem. And unless you wished you didn't have to put in any screens to keep out the flies that carried filth on their feet. Two of your children had typhoid fever in Tunlaw County, didn't they? Got it from flies or from an infected well, probably. None of them had it down here, did they? Do you know why? It was because I, as health officer, made Jones, who sold you the farm, fill in his well because it was a cesspool of pollution and dysentery and typhoid that had cost him the lives of his wife and his only child. I made him dig another in a better place by threatening to prevent his selling his farm to anybody until he did. That's why you haven't had any bills to pay for typhoid or dysentery or maybe for funerals. Those mosquito screens that keep out flies and the sanitary privy that kept the flies from getting pollution on their feet to be carried to your food saved your family. Can you calculate how much all this service was worth to you?"

Mr. Holly shook his head. "No, I can't," he admitted. "But I know it's worth a lot."

"Then try to calculate this: When you came here your two eldest boys had hookworm disease; they probably got it when they visited their uncle down in the hookworm belt. One of them and your girl had adenoids that were deforming their faces and interfering with their breathing and thinking. Your girl also had a cataract that made her so deaf that she couldn't hear half the teacher said; and so she got the credit for being dull and stupid—"

"Dang you!" Holly was on his feet. "Maybe that's true, but I aint going to listen to any more of it. I just—"

"Then listen to this Mr. Holly. Why is it that your children are now among the brightest and healthiest and

finest children in the school? I'll tell you why. It's because the county health service cured the two that had hookworm and gave them a chance to get well and strong. And it's because Miss Gordon nearly wore herself out going to your house the first winter you were here and urging Mrs. Holly to persuade you to have the adenoids that were ruining two of your children taken out at our nose and throat clinic; and persuading you direct to take darling little May to town to a surgeon to have her hearing attended to. She isn't considered stupid now, is she? I'll tell the world she isn't. Consider what those children are now and what they were then; and tell me what the county health service has done for you that's worth while."

"Done for me?" Holly was on his feet once more. "It's done everything for me. It's made me attend to things that I was too big a fool to attend to of my own accord. It's sent you here to give me advice for—for—Good Lord—for \$1.76 a year. Think of it: \$1.76 a year. It's given my boys health and strength and a chance to be something. And it's given me back my little May as bright and rosy as she was when she was a baby. Doctor! You needn't calculate any more. Just charge me up with a million dollars worth of health—price \$1.76."—
Issued by the U. S. P. H. S.

Kansas Now Has Commission for Blind

Kansas has passed a law creating a commission for the blind, the functions of the commission to include, along with the usual provisions, co-operation with local and state agencies in all activities looking toward the prevention of blindness, especially in the dissemination of especially prepared literature on the hygiene of the eyes.

Competition of frozen meat from South American packing centers has become so serious to the Australian frozen meat trade as to encourage the utilization of beef cattle in Australia and New Zealand for the production of meat flour which is made as successfully as dried milk in this country. Drying and pressing eliminate around 60 per cent of the moisture. The separated fats and juices are then returned to the meat, which is further dried preparatory to reduction to the consistency of meal. The meal contains unredressed the nutritional properties of the meat and can be preserved indefinitely, says *The Chemical Age*.

School Heating and Ventilating

EVER since mechanical equipment was first installed as a means for the precise control of air conditions in public places the public school has been a favorite field for experimentation in ventilation and, it must be admitted, for the exploitation of more or less radical ideas. In the main, however, apparatus only that is fundamentally sound has persisted and, by a gradual process of elimination, the best is in general use.

It is to be noted, however, that no "system" assures good ventilation. Ventilating practice is nowhere better than the intelligence accorded the subject of air control and—it might well be added—the intelligence of the public so served. The whole matter of heating and ventilating systems for schools was discussed in a recent issue of the *National School Building Journal* by C. A. Booth, of Buffalo.

By mechanical ventilation, he says, we mean the use of fans and other apparatus for the purpose of air conditioning—and it may be well here to state that the term "air conditioning" covers nothing more complicated than the producing of such conditions of air cleanliness, temperature, and moisture, as may prove most desirable. For a textile mill, or for a bakery, air conditioning means something quite different than for a public building. At its best, it means for a school more than simply heating or ventilating, and yet the means of insuring properly conditioned air are simple, and the results certain. The fan, the air washer, the radiation surface, the air ducts and dampers, the thermostats for regulating temperature, the low pressure boiler with its auxiliaries, are the prime and practically the only requisites for such a system, and the results depend more on a capable and conscientious janitor than on any high degree of technical operating skill.

Thirty years ago the hot air furnace was in common use for schools and other buildings for which ventilation was supposed to be essential. The furnace system had the advantage of a low first cost, but even in those days of cheap fuel its operating expense was considered too great. The amount of fuel required was much more than for the steam hot blast system, the ventilation conditions obtained with the latter were better, and the hot air furnace has survived only in a few localities in the northern states. In the southern states mechanical ventilation has been given very little attention, largely, of course, on account of the less severe climate, and the fact that the total

investment for schools is much smaller.

The steam hot blast system has come then into general use, but in the course of time it has, and still is, going through many modifications. The arrangement most favored by architects and heating and ventilating engineers twenty years ago was what is known as a straight hot blast system. In this system all air for ventilation

originally intended as a measure of economy to permit the heating of the building outside of school hours without operating the ventilating system, it had a tendency to result in unnecessary duplication and expense. For example, it has not been uncommon to see school buildings with the split system in which almost the full heating requirement could be taken care of by either the direct radiation, or by the ventilating apparatus. Even if this excess capacity did not exist, the duplication of the two systems was in itself expensive; the most serious objection, however, came from the virtual divorcement of the ventilating system from the heating.

Even with the best supervision it was hard to be certain that the ventilating apparatus was in constant operation during school hours. Engineers and janitors were naturally averse to doubling their coal consumption and their labor for a result which was not tangible and, unfortunately, proper supervision over operating conditions of ventilating plants in schools is the exception rather than the rule. Above all, there was good cause for consternation, with mounting fuel costs, at the cost of securing ventilation.

I mentioned previously that ventilation plus heating doubled the fuel cost as compared with heating alone. As a matter of fact, under the conditions obtaining in most of our northern schools, the use of outdoor air for ventilation places a load on the heating plant of nearly three times as much as the heating requirements for a well constructed school building. In one of our northern winters this fact is one for serious consideration.

In view of the tendency on the one hand to increased first cost by duplication of apparatus, and, on the other hand to increased first cost by dupli-expense for fuel, it is no wonder that leaders of the medical and engineering professions began to question just where this tendency was leading. The standard for good ventilation has been considered as thirty cubic feet of fresh air per minute per occupant, but as the lung capacity or, in other words, the amount of air inhaled and exhaled in the same time, is but a

very small percentage of that amount, about one-third of a cubic foot, it is understood that the thirty cubic foot standard is to be regarded only as a coefficient of dilution. It is also well known that exhaled air contains no poisons or injurious elements, somewhat contrary to the popular belief, and that the carbon dioxide content, which had been the customary measure of impurities, also had little significance, since carbon dioxide, even in a concentration considerably greater than usually found, is entirely harmless. As a matter of fact, the infiltration through the walls and around the

DR. HERMAN M. BIGGS IS TAKEN



Dr. Herman M. Biggs, state health commissioner of New York since 1913, died in New York City on June 28. The health achievements loom large that can be attributed directly to the efforts of Dr. Biggs. Their ultimate value it is impossible to estimate. His death is a distinct loss to health work generally, but the vision and personality of the man will long permeate the cause to which his life was devoted.

was taken from outdoors, and no direct radiation was used, except in toilets, corridors, etc., the class-rooms being heated as well as ventilated by the incoming air, which was warmed by passing over sufficient indirect surface to take care of the heating requirements.

Later what is known as the split system was introduced, with the practice of heating the class-rooms wholly or in part by direct radiation, and using only enough indirect heating surface to bring the incoming fresh air up to or a little above the room temperature of 70 degrees. While

windows is much greater than the amount of air which is actually breathed into the lungs of the occupants of the average school room.

Experiments at Wesleyan University, at Johns Hopkins, and within the last year at the Research Bureau of the American Society of Heating and Ventilating Engineers, have brought to light much additional information on the so-called zone of comfort. From these experiments it appears that the wet bulb temperature is a better indication of comfort than the dry bulb, which confirms previous and somewhat less accurate data to the effect that humidity is of quite as much importance as temperature in producing proper and comfortable air conditions. A room temperature of about 65 degrees to 68 degrees, with a wet bulb temperature of 50 degrees, and a slight sensation of air in motion, have been pretty definitely determined to be not only the conditions most conducive to comfort, but most favorable for the heart, respiration, and all bodily functions. These experiments, it may be added, have been conducted under the most scientific conditions, and have been repeated so many times, and by so many different experimenters, that the results can hardly be questioned.

These results have been a marked confirmation of the wisdom of the system which has come into common use in various sections of the country, notably throughout Minnesota, Wisconsin, and Iowa, and in the schools of St. Louis and many other large cities; this is referred to as the recirculating system, and has for its most prominent feature the recirculation during school hours of approximately seventy-five per cent of the air supplied for ventilation. I will first outline the features of the mechanical equipment, and then mention the results obtained.

Ventilating fans of the modern multiblade type, usually motor driven, are used with a spray type air washer having provision for keeping the eliminator plates covered by a film of water, so as to accomplish complete dust removal without materially adding to the humidity. The air washer ordinarily recirculates the water from the settling tank, but this water is changed twice a week, or oftener, if conditions require. The indirect radiation is sufficient to heat all rooms for which ventilating air is supplied. Direct radiation is provided only in the unventilated spaces, or those rooms which have gravity exhaust ventilation, such as toilets. Only enough heating surface is installed to heat the building when three-fourths of the air handled is recirculated and one-fourth fresh air taken from outdoors. Automatic temperature regulation and a simple automatic humidity control regulate the wet bulb as well as the dry bulb temperature in the rooms; the thirty cubic feet per minute per occupant, for which provision is still made, creates a sensation of the air in motion, and it is possible to increase or to decrease this volume of air without very materially affecting the cost of operation.

What, then, are the results? First and foremost we have the assurance

of a system in operation, instead of an expensive ventilating equipment which is lying idle, permitting unhealthful conditions, while the impression exists, even no doubt among the members of the school board, that everything has been done to provide for the welfare of the children. The ventilation is no longer divorced from heating, but goes hand in hand, and its operation is compulsory.

The air is conditioned in accordance with the best present standards, on which the authorities are in closer agreement at this time than ever before. According to these standards, overheating is the most undesirable

condition; air free from dust, in moderate motion, and with a predetermined degree of moisture must be supplied. With such a system the windows may be opened if desired, no unbalancing or uneven distribution of air will result, and the effect of the open windows will be felt nowhere except in the same room. Not by any means the least important consideration is the fact that with such a system the reduction in fuel cost is at least 50 per cent as compared with using outdoor air for ventilation. Air recirculation has been practiced successfully for too many years to be considered in any sense an experiment.

CLEANING AND DYEING INDUSTRIES



The plant of a cleaning and dyeing establishment at La Grange, Ill., where local ventilation, adapted to the special condition to be corrected, takes equally good care of fire and health hazards. Fire hazard affects the point at the left of the picture, while heat and humidity are countered at the right.

Anilin poisoning in black dyeing has been the subject of several recent investigations. Comparisons between the dangers of steam processing and the oxidation process have been reported recently by Raymond Williamson in the *Journal of Industrial Hygiene*. The relation between anilin poisoning and the hours worked per week was very definite. Two other factors were very definitely developed by the study: The application of local ventilation in the various parts of each process, and the separation of the various parts of the process in different rooms. It was held that the atmosphere in all works where anilin is used contains a certain amount of vapor which is productive of different degrees of anemia and symptoms of anilin poisoning. Individual susceptibility plays a part in the picture, but local ventilation is in any case held to be essential.

In cleaning establishments the fire hazard is added to the health risk, and the humidity of pressing rooms contributes its share in the deterioration of the worker. Modern methods of air control make possible the hygienic air conditions which in these

industries mean preservation of health to the worker.

Cooperative Scheme for Officing In Chicago

Announcement is made that twelve of the leading social agencies of Chicago have undertaken a scheme of cooperative officing in the Keehn Building, 308 North Michigan Avenue. Economy in cost of space is fostered by the plan, supplies are secured cheaper through joint purchasing, and administrative efficiency is promoted through organization of common services. The organizations concerned are: Chicago Association for the Prevention and Relief of Heart Disease, Chicago Council of Social Agencies, Glenwood Manual Training School, Illinois Children's Home and Aid Society, Illinois League of Women Voters, Illinois Society for Mental Hygiene, Illinois Society for the Prevention of Blindness, Infant Welfare Society, Joint Service Bureau, Religious Education Association, United Charities of Chicago, and the National Board of the Young Women's Christian Association (Chicago office).

Lighting Code for Massachusetts Industries

THE following code for lighting industrial establishments has been adopted by the department of labor and industries for the purpose of protecting employees from accidents and eye strain due to inadequate or faulty lighting.

This action has been taken under authority of General Laws, Chapter 149, Section 6, which requires the department of labor and industries to "make reasonable rules, regulations, and orders applicable to either employers or employees or both for the prevention of accidents and the prevention of industrial or occupational diseases," and Section 113, which provides that "every factory, workshop, manufacturing, mechanical and mercantile establishment shall be well lighted, well ventilated and kept clean and free from unsanitary conditions, according to reasonable rules and regulations adopted by the Department with reference thereto."

The requirements presented represent the minimum standard to be maintained for this purpose, and are to become effective January 1, 1924.

In preparing this code, the department was assisted by the following committee:

Dr. Louis Bell, chairman, Federal Committee on Lighting, Boston; Dr. Walter B. Lancaster, oculist, Harvard Medical School, and Massachusetts Charitable Eye and Ear Infirmary, Boston; Dr. Harry Linenthal, physician to out-patients, Massachusetts General Hospital, Boston; Dr. Wade Wright, director, Industrial Clinic, Massachusetts General Hospital, Boston; Dr. Frederick H. Verhoeff, oculist, Harvard Medical School and Massachusetts Charitable Eye and Ear Infirmary, Boston; Edward M. Coffin, staff engineer, Associated Industries, Boston; Charles F. Horan, director of safety, Hood Rubber Company, Watertown; John Newington, expert on lighting for New Bedford Cotton Manufacturers' Association, New Bedford; P. Harry Jennings, business agent, Boston Central Labor Union, Boston; Leonard W. E. Kimball, representative of Electrical Workers' Union, No. 103, Boston; and S. E. Whiting, assistant engineer, Liberty Mutual Insurance Company, Boston.

The assistant commissioner sat with

the committee, representing the department of labor and industries.

Part I—Rules

Rule I.—General Requirements. (a) Working or traversed spaces in buildings or grounds, and all working places during the time of use, shall be supplied with light in accordance with the following rules. (b) The location at which the principal illumination is required is herein expressed as "at the work." Measurement of the illumination shall be made at this location in the usual plane in which the work is done; that is, on a horizontal, vertical, or intermediate plane, as the case may be. (c) For the purpose of light measurements, a standardized photometer shall be used and such measurements shall be made at such locations specified in the tables.

	Minimum
Foot-Candles at the Floor Level, Required	
1. Roadways and yard thoroughfares	0.02
2. Storage spaces	0.25
3. Exits, passageways, stairways, hallways, elevator entrances, elevator cars, dressing rooms, washrooms, toilet rooms, water closet compartments ..	0.50
Foot-Candles at the Work	
4. Work not requiring discrimination of detail such as handling material of a coarse nature and performing operations not requiring close visual application	0.50
5. Rough work requiring discrimination of detail, also work in basements of mercantile establishments requiring discrimination of detail	1.00
6. Rough work requiring closer discrimination of detail, also work in basements of mercantile establishments requiring closer discrimination of detail, intermediate between 5 and 7	2.00
7. Fine work, such as fine lathe work, patterns and tool making, also office work, such as accounting and typewriting ..	3.00
8. Fine work, requiring closer discrimination of detail, such as watchmaking, engraving and drafting	5.00

Rule II.—Intensity Required. The minimum intensity of illumination to be provided and maintained is given in the following tables:—

Rule III.—Protection from Glare; Shading of Lamps. Lamps producing glare in the ordinary field of vision from any position at which work is performed, or such lamps located in traversed spaces in buildings, shall be provided with shades, reflectors, diffusing glassware or other accessories, installed and arranged in such manner as to minimize glare.

Such devices shall be of substantial construction and made of non-inflammable material; the term "non-inflammable material" as used in this rule shall mean material which will not readily ignite or burn. The term

"minimize" as used in this rule shall mean to reduce to the smallest practical proportion."

This rule shall not apply to lamps for a temporary decorative purpose where an unusual or harmful glare is not created.

Rule IV.—Distribution of Light. Lamps shall be so installed with regard to height and location, spacing, shades, reflectors, and other accessories as to secure a good distribution of light on the work and avoid objectionable shadows and excessively sharp contrasts.

Rule V.—Entrance and Exit Lighting. Lighting shall be provided in all stairways and exits of factories and in the passageways appurtenant thereto, independent of the regular lighting of the working space. The lighting circuits for the stairways and exits should extend inside any working room where 20 or more persons are regularly employed, so as to light the immediate entrance to the stairway or exit. Such lights shall be served from a source not subject to failure because of the failure of the circuit fuses for the room lighting, and preferably from an independent connection extending back to the main service entrance for the building. In case unusual danger may exist on account of type of building, nature of the work, crowded conditions, or lack of suitable exit space, the Commissioner of Labor and Industries may require such lighting to be further extended within the working space; and that independent service shall be insured by connection to a separate source of supply without or within the building.

Rule VI.—Classification. Assignment of industrial operations to Grades 1 to 8 inclusive, of Rule 2, shall be determined by the commissioner of labor and industries subject to review by the department upon application of anyone affected thereby.

These rules may be modified in whole or in part, with respect to existing installations by the Department of Labor and Industries on the showing of adequate reason for such action at a hearing when all interested parties are given an opportunity to be represented.

Under the provisions of the statute, any person who violates any reasonable rule or regulation, order or requirement made by the Department of Labor and Industries is subject to a fine of not more than \$100. (*General Laws, Chapter 149, Section 180.*)

Part 2—Recommendations

To reach at all times the mandatory values required in Rule II, the initial illumination, when the equipment is installed, should exceed those values by at least 25 per cent.

The intensity requirements for adequate day lighting are much higher than those for adequate night light-

ing, because under daylight conditions the brightness of objects in the field of vision is generally much greater than at night, and hence for good visibility, a correspondingly more intense light must fall on the object viewed.

The darkest part of any working space, should, under normal daylight conditions, be illuminated by natural light, to not less than the intensities specified in Rule II. It is recommended that the minimum intensities of natural light should considerably exceed those specified for artificial light in Rule II.

When part daylight and part artificial light are used, a higher intensity is usually required than for artificial light alone.

The minimum requirements in Rule II specify the lowest illumination with which employees can properly be safeguarded against accidents and eye strain. The illumination in well lighted factories is much higher than this. The intensities for desirable illumination are given in the following tables.

Foot-Candles at the Floor Level.	Modern.	Practic.
1. Roadways and yard thoroughfares	0.05 to 0.25	
2. Storage spaces, aisles and passageways (other than exits)	0.50 to 1.00	
3. Exits, passageways, connected therewith, stairways, hallways, elevator entrances, elevator cars, dressing rooms, wash-rooms, toilet rooms, water closet compartments	1.00 to 2.00	
4. Work not requiring discrimination of detail.	1.00 to 2.00	
5. Rough work requiring discrimination of detail	2.00 to 4.00	
6. Rough work requiring closer discrimination of detail	4.00 to 6.00	
7. Fine work	6.00 to 8.00	
8. Special cases of fine work	8.00 to 15.00	

The foot-candle, the common unit of illumination, is the lighting effect produced upon an object by a standard candle at a distance of one foot; at two feet the effect would not be one-half foot-candle, but one-fourth foot-candle. A lamp of twenty-five candle power in every direction would produce an illumination of one foot-candle at a distance of five feet in any direction.

In all cases in which work must be performed under very low illumination, such as hardening steel and certain glass processes, safeguards against accidents should be provided.

Where steam or smoke is occasionally present, such as in dye houses and on molding floors of foundries, similar safeguards should be provided.

Certain operations—for example, photographic processes, are carried out in darkness, but spaces so used must be provided with available lighting for use in emergencies.

Emergency lighting when required should have a minimum intensity of one-half foot-candles.

Glare may be defined as any brightness within the field of vision of such a character as to cause discomfort, annoyance, interference with vision or eye fatigue.

Serious glare may result from specular reflection from polished and other materials upon which work is being performed. It is sometimes practicable to avoid such glare by a change in the relative location of the light source and the work, but usually it can be obviated successfully only by decreasing the brightness of the light source.

Glare resulting from contrasts will be more serious in the case of dark walls and ceilings than where these are painted a light color.

The most common and troublesome cases of glare are those which are due to unshaded or inadequately shaded lamps of high brilliancy and candle power near the eye within the field of vision.

Protection from Glare.—Lighting, whether natural or artificial, should be such as to minimize glare, and prevent discomfort or injury to the eyes.

Shading of Lamps.—Shades for lamps should be either opaque, translucent, or diffusive, and of such a nature as to give good distribution of light.

The ordinary vacuum type incandescent lamp, especially in the 50 watt size or less, is usually not a serious source of glare unless located too near the eye in the field of vision; however, shading of these lamps where feasible is desirable, as it should add materially to the effectiveness of the illumination. Since gas-filled electric lamps and incandescent mantle gas lamps usually have a much greater brilliancy and volume of light, they should not be used in the normal field of vision without adequate shading.

Shading of Windows.—Shades or awnings or other suitable devices should be used to minimize glare wherever the location of the work is such that the workers must face large window areas through which excessively bright light may at times enter the building.

The saw-tooth sky-windows of modern factory construction permit an adequate and nearly uniform daylight illumination of the floor area, and are desirable when practicable. When rooms are illuminated through side windows, it may sometimes be advisable in order to prevent glare, to use prismatic glass in the upper sashes of the windows.

Switches and controls should be so placed that at least pilot or night lights, which may form part of the entrance and exit lighting, may be lighted, if not kept regularly burning, from main point of entrance for employees. Such controls should be plainly labeled.

All lighting equipment should be cleaned and kept in order so that the intensities of illumination never fall below the minimum requirements.

The light from lamps and windows is frequently reduced twenty per cent or more through ordinary accumulation of dust and dirt; therefore, the value of care and regular cleaning is obvious.

A League for Mental Hygiene, modeled on and affiliated with the League of Mental Hygiene of North America, has been formed by the Brazilian Psychiatric Society.

Results of Swedish Eight-Hour Day Studied

The Swedish Office of Social Affairs has completed an investigation into the social and economic effects of the provisional legislation reducing hours of work, in force since 1920, says a statement from the National Industrial Conference Board. Though lacking any exact statistical statement of the economic results of the application of the act, reports to the board indicate that the employers' usual estimates of an average increase of 15 to 20 per cent in the cost of production are in general too high.

"A special inquiry made by the Board of Trade throws some light on this point," the statement says. "Local investigations were conducted by experts in some forty undertakings in different branches of industry. These undertakings were divided into two groups—those which increased their staff sufficiently to make up for the loss in hours of work and to maintain their output, and those which made no such increase in staff and consequently restricted output. In the first group the report estimates the increase in cost of production at 1.9 to 5.4 per cent, as compared with 1920; in the second the increase ranged from 3.7 to 11.8 per cent. While these figures give a general idea of the increase in expenditure due to the application of the act, as compared with other costs of production, they are of little use in determining its effect on the final economic strength of an undertaking.

"The report brings out the very different opinions which prevail in different circles on the advantages and disadvantages of the eight-hour day. Employers very largely support the view expressed by the Federation of Swedish Employers, that the 'introduction of the legal working day has been a great misfortune for the whole country,' while the workers have shown keen appreciation of the act and a determination to fight for its defense.

"In certain manufacturing industries the act has proved a powerful stimulus to reforms of organization and to a greater concentration of labor and an increase in its efficiency by technical alterations, and these gains have in some measure compensated for the reduction of hours of work. Industries that involve continuous processes have suffered most from the change, but the report recalls that the limitation of hours was particularly welcome to these shift-workers."

Posture in Women's Work

Serious Injury May Be Caused By Cramped, One-Sided Positions

THE effect on the physique and on the health of the industrial workers of the monotonous and rapid repetition hour after hour and month after month of movements in themselves light and simple has begun to challenge the attention of the medical profession. Especially is this true since so many such processes, characteristic of modern industry have been gradually monopolized, usually on a piece basis, by women whose deftness and swiftness have enabled them to take possession of occupations which did not require much muscular strength.

So far, although conclusive proof is lacking, the weight of opinion seems to be that serious injury may be caused by any work, the performance of which requires cramped, constrained, or awkward posture. Less general and less positive is the opinion as to the effect of the work on the nervous systems, especially in women.

Work that requires bent shoulders and drooping of the head compresses

the chest and interferes with the breathing, and this alone leads to many ills. It also forces the ribs and all that they inclose down upon the abdomen and tends to displace its organs. Among other results this pressure causes a "folding in" of the wall of the abdomen along the belt line and the partial stoppage of material moving through the intestines, and this leads to constipation, diarrhea, nervousness, abnormal fatigue, and headaches.

Work that requires a sideway "slouch" crowds the ribs between a low shoulder and a high hip on one side and expands them on the other side, interfering with the breathing and paving the way for tuberculosis. In girls and women this slouch also tends to displace other important organs.

Such results may be prevented or lessened by change of work; for instance, a change from work that requires stooping forward to work that requires reaching upward, or that requires a sidewise slouch, or that re-

quires no particular attitude. Such a change naturally involves a loss in speed, which for a time may cause serious money loss to a piece worker; but, especially in young girls, it will help to prevent ill health and possibly deformity.

Proper chairs are also helpful. For instance, as sitting all day at one's work is probably nearly as bad as standing all day, a combination of chair and desk (or work bench) whose relative heights would permit one to work with equal ease whether standing or sitting may be advantageous. Many types of "proper" chairs have been designed; but, naturally, few or none of them seem to be fitted to all types of work. Certain factors seem, however, to be advisable in all chairs.

All chairs, for instance, that are too high to permit the occupant's feet to rest firmly on the floor, should be provided with a foot rest that would prevent the lower part of the legs from dangling and the upper part (thighs) from pressing against the



Bent shoulders, drooping head, compressed chest, mark the position of this worker; all are conducive to bodily ills.

This posture does not impede the circulation and is in itself a mechanical safeguard against needless fatigue at the loom.

edge of the chair; practically, this means that women should not be called upon to use chairs built for men. Rests for the back are also extremely helpful in lessening fatigue.

That the constant repetition of a movement does in time affect the nervous system is more than probable, but how importantly it affects it has not been established. Anderson, for instance, states that girl after girl in a cigarette packing factory was found when off duty to be constantly repeating the motions she made while at work; and insists that such tendencies should be investigated.

The best preventives so far suggested seem to be the daily utilization of the forenoon and afternoon rest periods now in vogue in most factories either in complete rest or in exercising muscles not used in working time. When combined with periodic changes in occupation that call for changes in the muscles used such utilization should give effective help in preventing serious troubles.

Air Control in Bakeries

The problems of air control in bakeries are varied. The heat and humidity are such as to make cooling of the atmosphere necessary for the comfort and efficiency of the men. The accumulation of fumes along with the constant condensation of moisture produces odors that affect the product as well. Gases in the atmosphere have a much more serious action when temperatures are high and when the air movement is reduced.

Air control is simplified if in addition to forced ventilation provision is made for mechanically cooling and cleaning the air. These ends are served by passing the air through cooling chambers built in cells of five or six and arranged so the air can be shut from any one of them, thereby permitting the frost on the pipes to be melted and drained off, when it is again put into service. Such chambers are usually filled with 2 inch pipes and 3 inch centers and staggered so the air must strike the pipe surfaces on its passage up through.

Where bread is made on a large scale, some such provision as that described in the March issue of *Heating and Ventilating Magazine* serves the double purpose of safeguarding the workmen and reducing the temperature of the bread mixture. Mechanically operated dough mixers that work up from six hundred to twelve

hundred pounds of dough in one batch cause a rise of temperature in the dough from the heated arms that has a bad effect on the flavor of the bread and it is now considered good practice to keep the temperature of the mixture at or near 70 degrees F. Although the flour, yeast, etc., are mixed with water at a low temperature, ten minutes of continuous beating would raise the temperature above this point. To prevent this a supply of air cooled to a temperature of 40 to 45 degrees F. is fed into the mixer while operating. Quite often this air is washed.

The air should not be dry, consequently a large quantity of air at 50



Grease fumes are here collected by hoods over the vats. Workmen are thereby protected from the heat, and the finished product from deterioration from noxious odors.

degrees is better than a smaller quantity at a lower temperature, as the extra dryness of cold air would absorb moisture from the dough.

The air of the workroom in such a process is kept around 70 to 80 degrees by cooling the air for the workroom and circulating it through the room. Exhausts take care of special points where heat or fumes need to be reduced.

Important Nutritive Properties of Cheese

Estimates of the nutritional value of cheese have in the past been made on the basis of its high caloric content and its place in the dietary has been rather as an alternative for meaty foods than as indispensable for its intrinsic merit. All this is in a fair way to being changed on the basis of recent studies of food substances. S. K. Robinson, writing in *The American Food Journal*, as-

serts that without cheese the American dietary cannot readily be balanced in certain basic constituents.

The importance of cheese from the newer standpoint of vitamins, mineral salts, and certain amino acids is the basis of Mr. Robinson's study. In the process of cheese-making the greatest part of the casein and fat is brought down in the curdling process, leaving behind in the whey the milk, sugar, and albumin. Most of the mineral substances—the calcium, phosphates, and iron—are lost only to a small extent. The cheese is rich in fat soluble A, the growth vitamin, and Vitamins B and C are also retained to a smaller extent which has never been determined. Whatever is argued in favor of the nutritive value of milk can therefore be said of cheese which, for some uses, being the more concentrated food, enhances some of the benefits derived from a milk diet several fold.

Until recently the science of nutrition busied itself chiefly with the study of fats, proteins, and carbohydrates. The importance of mineral constituents is apparent, however, when it is considered that 2 per cent of the body weight is made up of calcium, and more than 1 per cent of phosphorus. Starling reports an interesting experiment which shows the importance of minerals in which rats fed upon a well balanced diet, but devoid of minerals, died sooner than another litter of rats placed upon a starvation diet.

Of the calcium found in the body, 99 per cent is found in the bone. Phosphorus, however, is distributed throughout the body. No other element has such a wide distribution, and the calcium and phosphate content of the mother's milk is very definitely related to the growth of the young animal. Rickets and soft bone in children, poor teeth, and similar troubles are directly traceable to insufficient calcium in the diet. Phosphorus is always found where growth is taking place. It is found in brain tissue, and nervous disorders have been ascribed to its deficiency. Lorand is quoted as saying the superiority of brain tissue lies chiefly in its phosphorus content and it is further claimed that fatigue of nerve and brain tissues should be met by diet. Robinson draws a parallel between the deficiency of the average American diet in calcium and phosphorus and the average American's nervous tension, and recommends an increase in the amount of cheese and milk to stabilize this inequality.

Social Service Ward

THE community at large often assumes and too often persists in a hopeless and certainly hapless mental attitude toward almost all aspects of the complex problems of social hygiene. The provision of bed facilities for venereal disease patients is a factor in the problem that has in the past received little attention. The social significance of these maladies is no longer questioned; the individual who has acquired a venereal disease involuntarily, or by accidental contact—which is very commonly nonsexual—is as deserving of community consideration as the individual who through deliberate sexual relations receives an acute infection that is a menace to his fellows. The former class of venereal disease victims even if in a late and noninfectious stage of the disease may face disablement and dependency, a condition that will as certainly, though less rapidly than acute disease, effect society.

An article in the April issue of *The Journal of Social Hygiene* on "A Social Service Ward for Women and Children: a Partial Solution of the Family Problems of Venereal Disease," is concerned with the problems mentioned above. The author of this paper, Dr. Victor C. Pedersen, states in the opening sentence that he has long "had the conviction that no hospital can do its duty by the community unless it has bed facilities for the so-called venereal disease patients." The bulk of the paper is concerned with the work of the Social Service Ward for Women and Children which was begun at St. Mark's Hospital, New York City, in July, 1922.

While in, and for, St. Mark's Hospital, this ward is temporarily independent of the hospital finance because the Social Service Committee and its friends meet the expenses, it is interesting to note that several private citizens, immediately on hearing of a few of the meritorious or pathetic cases, have liberally given financial support. During the first three months of operation with hardly any exception each bed has been filled all the time and a waiting list has existed.

Dr. Pedersen believes that ward service alone is fitting for the study of obscure and doubtful cases. "The first dictum (of the diagnosis of syphilis) is that if the patient has, or has had, the disease he himself and his physician must know the fact and the degree of the disease. In no other

way can the patient be induced to submit to, and the doctor plan for, the right methods and means of treatment. The second dictum is that if the patient has not and has not had syphilis he himself and his physician must know that fact. In no other circumstances will the patient be relieved from fear of the disease and the doctor from ordering unnecessary treatment."

During the ninety days covered by this report twenty-nine patients were received and fully diagnosed, and then returned for treatment to the agencies from which they came, or referred for treatment to the clinic of St. Mark's Hospital. Case No. 21, one of the many given in the report, illustrates the type and value of the work done in the ward. An illegitimate baby was born to F— E— after about a year's common law marriage with a young man who at first ran away but later returned with a willingness to marry the mother legally and religiously. During his absence she went to a hospital in Washington, D. C., where the opinion was given (seemingly by a nurse or through confusion of specimens or some other error) that she had true gonococcal infection. This news reached the young man who thereupon refused to marry her if this diagnosis was correct. After nine days in the ward F— E— was discharged without any suspicion of gonorrhea. The correct solution for this youthful misalliance had been found.

Such cases as these, and cases of hereditary or suspected hereditary syphilis, particularly in little children, make this a particularly appealing as well as valuable work.

Work of the Playground and Recreation Association

More than a hundred communities were visited during the past twelve months by field secretaries of the Playground and Recreation Association of America, who have helped in innumerable ways to set up recreational machinery and to oil that which is already existent. They have enabled cities to unify their work and thus effect economy, and have done much to interest the citizens in the work.

Another constructive part of the Association's field work is that of helping states and municipalities to pass bills permitting the establish-

ment of recreation systems. The past year has witnessed the passing of a significant amendment to New York State's recreation law empowering counties to establish boards of recreation and towns and villages to combine to conduct recreational programs. This bill will make possible more rapid development of public recreation in rural sections of the state. Des Moines, Iowa, was assisted in securing a law permitting a playground commission.

Besides the communities visited in person by field workers, there are thousands which are rendered service through correspondence. In all, fourteen thousand requests for information were received during 1922, requests not only from all parts of this country but from thirty-one foreign nations as well.

The publications of the Association represent a service which each year grows in importance. Through bulletins, handbooks, pamphlets and the *Playground Magazine*, practical suggestions and technical advice are made available.

The results of the work are to be seen on every hand. Playgrounds, swimming pools, public bathing beaches, community buildings, municipal camps and golf courses have in the past two years doubled in number. The report covers statistical summaries of activities in more than 2,400 towns in the United States and Canada, five hundred five of these being complete enough to compare and tabulate. Since complete data came in from less than 50 per cent of the cities studied, the report indicates only in a general way the tendency of the recreation movement in 1922. The 505 cities under paid leadership report on 4,601 recreation centers. Men workers employed number 4,204; women workers 6,663. The total number of year round workers is 2,026. Seventy cities report training classes for volunteer leaders.

Only fifteen cities reported on the value of playground sites presented to municipalities during 1922. In these the sum aggregated \$611,400. A total average of evening attendance at centers was 218,790 in 143 cities giving this record. The total expenditure reported in 472 cities was \$9,317,048.79. Bonds for recreational purposes were issued by eighteen cities amounting to \$1,155,180. The administration costs of the Playground and Recreation Association of America was \$183,975.58 during the same period. Every where better organization and official support are giving unity and direction to recreational effort.

Deficiency Diseases in the South

IT IS hard for dwellers in security, where hygiene and health are securely safeguarded, and where varied and abundant food is taken as a matter of course, to realize that the mountain people of our southern states, depending upon their own efforts both in sickness and health, undergo lives of hardship and privation and subsist on a dietary so restricted that deficiency diseases affect whole populations in given communities. Even where chickens are kept neither the fresh meat nor the eggs are used for food, but serve as a medium of exchange for salt, sugar, vinegar, molasses, soda, canned goods, such as salmon, peaches, and tomatoes, and cheap candy and tobacco. Very little fresh meat comes to the table, with the exception of pork at hog killing time. Facilities for cold storage being out of the reach of these isolated people, beef or lamb cannot be utilized and hence is not available for the table. Garden patches poorly cultivated and badly kept, give at best an insufficient supply of beans, turnips and turnip greens, potatoes, cabbages, beets, and onions.

Sara Merrill, commenting in *The Forecast* on the first nutritional survey of a rural community by the Children's Bureau, gives interesting

facts on the nutritional index of a mountain county in the rich and prosperous state of Kentucky. Among 149 children examined only 7 per cent were in excellent physical condition, only 18 per cent in good condition, only 35 per cent in fair condition, and 40 per cent were in poor physical condition. Undernourishment was the rule, and not the exception.

Inquiring next into the economic status of the families concerned in the study, housing, sanitation, water supply, and the available food supply were considered, and the food question was found to be the most important of all. In the final analysis the health of the children seemed to hinge on the amount of milk that was provided for them.

The cornbread and fat meat diet which was the common one when meat was omitted, is deficient in calcium, as well as protein and vitamin content. Though the diet was bettered by the addition of any one of the more common foods used in the community—beans, biscuits, sorghum, sweet potatoes—it still remained inadequate in some respects, most especially there lacked calcium and the fat soluble vitamin. Milk supplied all the deficiencies noted. Small wonder, then, says the report, that milk is

called a protective food. It is veritably the salvation of diets in this community.

Another study quoted by Miss Merrill was that reported by Fairfax Proudfit on some sections of the southern highlands revealed conditions even more deplorable. The increasing peril of pellagra throughout the South, together with the annual mortality from tuberculosis and other respiratory diseases, and the high rate of infant mortality, require that more attention be paid to the food deficiencies in the groups represented.

It is for this reason that the best work to be done in these outposts of civilization is accomplished through education. Ignorance, disease, and poverty, go hand in hand. Also, it is easy to understand that agricultural experts and teachers in domestic science are in such communities the advance guards of public health work. A trained woman, with a good cook book, and new farming methods can, according to Miss Merrill, at least in her own neighborhood, so manage her food resources as to change the condition from poverty to well being. Nowhere is there a more striking similarity between diseases and dietaries than in these isolated regions of the South.

Smallpox Control on Shipboard

ON FEBRUARY 14, 1921, the United States Battle Fleet with a personnel of approximately twenty-five thousand men arrived at Balboa, Canal Zone. On one of the battleships there were fourteen cases of mild smallpox and subsequently eleven additional cases occurred on the ship and three among the contacts at the quarantine station. The total number of cases in the outbreak was twenty-eight. There were no deaths. There were no secondary cases on the infected ship and no cases on any of the other ships of the fleet. The measures put in force for the control of the outbreak were so simple, cheap, and effective that they are considered worthy of record.

The infected vessel was placed in quarantine, but the restrictions thereby imposed were ameliorated in every way which was compatible with safety, e.g., the small boats of the

vessel were permitted to participate in the Fleet sailing and rowing contests and the men were allowed to go on fishing and swimming parties, the sole requirement being that they be accompanied by an officer who saw to it that no contact was had with the personnel from other vessels and that at all times the quarantine flag was flown by the small boats used by the men from the infected ship.

The entire personnel of the Fleet was immediately re-vaccinated and the company of the infected vessel was vaccinated and re-vaccinated until a successful "take" or a reaction of immunity was obtained on every man. All personnel was inspected by medical officers twice daily and any person remotely suspected of having smallpox or a temperature above normal was sent to the quarantine station. All actual patients were isolated in the wards of Ancon Hospital.

The vessel was not fumigated and no chemical disinfectants were used. All belongings of infected men, suspicious cases, and close contacts were sent ashore and sterilized with steam. All hammocks, bedding, and wearing apparel of the remainder of the personnel were thoroughly scrubbed with soap and water, dried in the sun and afterwards sunned daily. The interior of the ship was thoroughly scrubbed with soap and water and repainted. Scuttle-butts were flamed with a gasoline torch every hour. All mess gear was sterilized thrice daily by boiling five minutes after thorough cleansing in a boiling solution of soap and water. Men were required to wash their hands carefully in fresh water before each meal and were encouraged to bathe or swim at least once daily.

The vessel sailed in close quarantine, completing its fourteen day quarantine period at sea. Before sailing,

all sick were put ashore at the quarantine station in order that the vessel should have a free sick-bay should subsequent cases develop en voyage. Just prior to sailing, the temperature of all officers and men was taken and the entire ship's company subjected to careful inspection, all suspicious cases being sent to the quarantine station. No cases developed en voyage or subsequently.

Aside from the fact that the officers and men were deprived of shore liberty and could not visit other vessels or receive any person on board, the routine of the infected ship continued as though there was no epidemic. Supplies and mail were delivered at the gangway and moving picture exhibitions were given each evening. The vessel was not detained but allowed to continue without interruption its maneuvers with the Fleet. Except for the hospital charges and the cost of rations for men detained at the quarantine station, the vessel was put to no expense which it would not ordinarily have had. In any event, the paint would sooner or later have been needed and there was no destruction of property by fumigants of very dubious efficiency. Throughout the entire quarantine period, the ship's company was apparently contented and happy, certainly it was very good natured and patient. It is believed that the "sweet reasonableness" of the control measures may have contributed not a little to this end.

New Regulations for Training British Sanitarians

The new rules presented below which have been adopted by the General Medical Council of Great Britain for the diploma or degree in public health will be read with much interest by American health workers. The principles which have guarded the Council in designing these new rules are (1) that the scope of the study for the D.P.H. must be enlarged to include the new subjects that have become of vital importance in the public health campaign during recent years, (2) that the training should be made more practical than heretofore, especially in its administrative and sociological aspects, and (3) that the efficient medical officer of health must be a physician of maturity and clinical understanding.

Rule 1.—A period of not less than two years shall elapse between the attainment by a candidate of a registrable qualification in medicine, surgery, and midwifery and his admission to the final examination for a diploma or degree in sanitary science,

public health, or state medicine.

Rule 2.—The curriculum for a degree or diploma in sanitary science, public health, or state medicine shall extend over a period of not less than twelve calendar months subsequent to the attainment of a registrable qualification.

Part I

Rule 3.—Every candidate shall produce evidence of having attended, during a period of not less than five months, at an institution approved by the licensing body granting the diploma or degree, practical instruction in:—

(a) Bacteriology and Parasitology (including Medical Entomology), especially in their relation to diseases of man, and to those diseases of the lower animals which are transmissible to man (at least 180 hours, of which 150 must be in laboratory work).

(b) Chemistry and Physics in relation to Public Health (at least ninety hours, seventy in laboratory).

(c) Meteorology and Climatology in relation to Public Health (at least ten hours).

Part II

Rule 4.—Every candidate shall produce evidence of having received, during not less than eighty hours, at an institution or from teachers approved by the licensing body granting the diploma or degree, instruction in the following subjects:—

(a) The principles of public health and sanitation (thirty hours).

(b) Epidemiology and Vital Statistics (twenty hours).

(c) Sanitary Law and Administration (including public medical services) (twenty hours).

(d) Sanitary construction and planning (ten hours).

Rule 5.—Every candidate shall produce evidence that he has attended for three months on the clinical practice of a recognized Hospital for Infectious Diseases, and has received therein instruction in the methods of administration. At least thirty daily attendances of not less than two hours in each week shall be required.

Rule 6.—Every candidate shall produce evidence that he has, during a period of not less than six months, been engaged in acquiring a practical knowledge of the duties, routine and special, of public health administration under the supervision of a medical officer of health, who shall certify that the candidate has received, from this officer or other competent medical officer, during not less than three hours on each of sixty working days, practical instruction in these duties, and also those relating to:—

(a) Maternity and child welfare service;

(b) Health service for children of schoolage;

(c) Venereal diseases service;

(d) Tuberculosis service;

(e) Industrial hygiene.

(f) Inspection and control of food, including meat and milk.

Certificates of having received the prescribed instruction in Public Health Administration must be given by a medical officer of health who devotes his whole time to public health work; or by the medical officer of

health of a sanitary area having a population of not less than fifty thousand, or in Ireland the Medical Superintendent Officer of Health of a County or County Borough having a population of not less than fifty thousand.

Seamen's Rights to Medical Radio Service

The probability that some masters of sea-going vessels may not, as yet, have been fully informed in regard to the right of members of their crews to medical service by radio while at sea and to treatment in U. S. Public Health Service hospitals on reaching port has caused Surgeon General H. S. Cumming to direct the preparation and sending of posters giving full information to all vessels of the American Merchant Marine.

Curiously enough, this medical service is really a lot of subsidy to merchant ships and sailors. A century and a quarter ago, when Congress established the Public Health Service, under the title of the Marine Hospital Service, it directed it to render medical aid to every American seaman who applied for it; and that for this each seaman should pay twenty cents a month. This was in 1798; in 1870 the tax was doubled; but in 1888 it was abolished; and since then all such aid has been rendered free. Even the expense of calling the Service by radio from out at sea is borne by the radio companies without expense to ship or sailor.

The forthcoming poster announcement reads as follows:

The U. S. Public Health Service provides hospital care and outpatient treatment for sick and disabled seamen. Hospitals with modern equipment, skilled physicians, specialists, dentists, and trained nurses are open to all persons employed on documented American vessels, and to the coast guard, lighthouse keepers, and certain others who help to keep the flag on the seas. An ambulance will go to the dock at any time upon telephonic call from a ship's officer.

As you are proud of a good ship, take pride also in keeping your own body healthy. Most injuries are due to carelessness. Most diseases can be prevented. Prompt care of small injuries may save a limb. Early treatment for disease may save a life or prevent months of illness. Learn to keep well. Pamphlets on tuberculosis, venereal disease, and other common diseases are sent on request by the Surgeon-General, U. S. Public Health Service, Washington, D. C. A book, "The Ship's Medicine Chest and First Aid at Sea" will be sent on request to the master of the vessel.

Any Marine Hospital will prescribe emergency treatment through radio shore stations in conformance with the provisions herein outlined.

Routine Food Inspection an Effective Health Measure

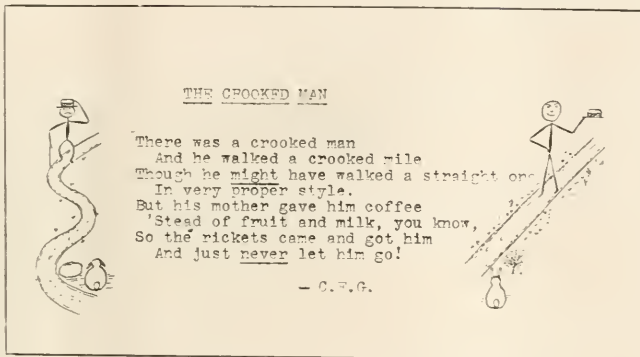
In the year 1910 there were 378 deaths in Cincinnati in children under the age of two from intestinal diseases. Last year the total was eighty-six. While educational factors have been at work, much credit for this saving of infant lives belongs to the activities during the same period of the division of food inspection, according to the annual report made in the May issue of the *Cincinnati Sanitary Bulletin*.

The Cincinnati supply of approximately thirty thousand gallons of milk daily comes from three states—southern Ohio, northern Kentucky, and southern Indiana. Marked improvement in the way of new barns, separate milk houses, milk coolers, sanitary equipment and better methods of milking were noted on the farms by field men who made 7,500 inspections. Five hundred and fifty producers who were unable to meet our requirements, decided or were requested to discontinue business. Fifty-six hundred notices were sent out to the producers, most of them letters of instruction. In addition to these, 17,000 educational pamphlets were distributed covering clean production and transportation. Permits at the rate of fifty cents for each six months were issued to milk shippers who comply with regulations. The milk is distributed by forty-five milk plants operated under a permit system.

Tremendous strides have been made during the past year in the retail industry. Three new milk plants were built, five completely remodeled, ten were equipped with mechanical refrigeration, twenty-two bottle and ten can powerwashers and sterilizers were installed.

While it is important and essential to supervise the product at the source of production, the real test of purity comes through chemical, bacteriological and sediment tests of the milk itself. The introduction of the sediment test has been a great stimulus for clean milk. One pint of each shipper's product is filtered through a cotton disk which is mailed back to the producer with such comments as may

fit the case. Thirty-one thousand six hundred and eighty-one samples were taken from milk plants, receiving stations in the country, retail wagons, restaurants, hospitals, and public schools; and of this number 8,788 were for the sediment test, 9,475 for bacteria, and 13,418 for chemical analysis.



At present all milk sold in Cincinnati, with the exception of certified and inspected, is pasteurized. Through pasteurization, the dealers have eliminated waste and are no longer harmed by milk-borne epidemics and subsequent loss of trade. In the old days, drinking milk was like a lottery from which one might draw an attack of typhoid fever, diphtheria, scarlet fever, septic sore throat, or bovine tuberculosis. No milk-borne epidemics have been noted since 1915, when universal pasteurization became effective.

During the year lay inspectors visited as often as time would permit, all establishments where foods are stored, packed, processed or sold. These include all restaurants, groceries, bakeries, meat stores, candy, ice cream and beverage manufacturing plants, and all incoming carload lots of fruit and vegetables. Meat shops and ice cream plants operate under a permit system at the rate of one dollar per annum. As the food inspector makes his rounds, samples are collected and subjected to chemical and bacteriological examinations for evidences of decomposition or adulterations, some of which menace health and life, while others are purely commercial frauds. Interstate violations are promptly referred to the Federal authorities.

During the past year 42,182 animals of the beef, sheep, goat, and swine kind were slaughtered under municipal inspection. This constitutes ap-

proximately 8 per cent of the total. Inspection is limited to those doing an interstate business. The interstate shipment of meat without Federal inspection is prohibited. Municipal inspection is carried out as prescribed by the United States Bureau of Animal Industry. Diseased animals are

disposed of according to the extent and character of the infection. Animals are either passed for food and so branded, or condemned outright; or passed with restrictions—as swine for lard, beef for sterilization. Condemned animals or parts are placed in steel tanks and cooked for not less than four hours under high pressure. The inedible grease so

obtained is used for soap, glycerin and other byproducts, and the residue is dried and used for land fertilizer.

Graduate veterinarians with years of training in animal pathology, abattoir sanitation and meat-processing are with us in the service. All animals offered for slaughter are inspected anti- and post-mortem. Inspection of meats in butcher shops, for evidence of decomposition, is the task of lay inspectors. A careful scrutiny is always made for the brand of Federal or municipal inspection. The skilled veterinarian alone is qualified for abattoir work.

Last year 440 animals were condemned outright and 10,629 primal parts. Sixty-nine swine were passed for lard; 585,400 pounds of sausage and lard were processed under inspection; and 116,000 pounds of various meats and sausage were condemned as unfit for food. The importance and necessity of this work must be perfectly obvious when we consider the animal diseases transmissible to man, notably bovine tuberculosis, the parasitic diseases, and meat poisoning.

The condemnations for 1922 totaled \$173,000.00. There were 24 prosecutions in the municipal court for violation of the pure food laws.

Dr. C. C. Pierce, senior surgeon of the United States Public Health Service, has arrived at Tampico, Mexico, to make a two-month's survey of the yellow fever situation at ports on the east coast of Mexico.

LATE HEALTH DECISIONS IN THE COURTS

BY DOROTHY KETCHAM, UNIVERSITY HOSPITAL, ANN ARBOR, MICH.

CANCER which developed after an injury was the basis of compensation by the Supreme Court of Colorado, January 8, 1923. While employed by the coal company, John Seitz, the employee, was struck in the face by a piece of coal. Later, carcinoma, a form of cancer, developed there, from which he died.

It was said first that there was no finding of fact that the accident was the proximate cause of the cancer or that the decedent suffered any disability as a result of the accident. This was not sustained by the Commission's findings. "That while the decedent was engaged in loading coal he was struck on the cheek by a flying lump of coal . . . beginning with the time the decedent's face became sore and swollen, his condition became steadily worse and finally culminated in his death on August 26, 1921. No intervening cause is shown that would, or does, account for the sudden change in decedent's condition." The physician's statement in part was "It is a well established fact that irritations and traumatism undoubtedly start cancer in some cases. . . . Men are struck in the face with pieces of coal in mines thousands of times and nothing happens, but at the same time a trouble might follow such an injury in another instance." The court concluded that there was "substantial and credible evidence to support the findings, and consequently the Commission in basing them upon such evidence acted within its powers."—*Canon Reliance Coal Company v. Industrial Commission*, 211 Pac. 867.

INJURY to an eye which in turn caused hemorrhage came before the Supreme Court of Oklahoma recently. An employee of the Winona Oil Company went to the company supply store for tools. After getting them he started out of the store to his car and stepped off a platform about two and one-half feet high. The tools being in his arms he received a severe jar, which caused a rupture of a blood vessel and a hemorrhage in the vitreous humor of the left eye. The evidence of the attending physician tend-

ed to show that for all practical purposes he had lost the use of the eye and the Commission award compensation for the permanent partial disability for the loss of an eye.

The petitioners claim that, first, this was not an accidental injury within the Workmen's Compensation Act and, secondly, that no disability resulted.

The Court pointed out that Workmen's Compensation Laws are to be construed fairly, even liberally, in favor of the employee. It is agreed that the stepping off the porch was not an accident but the untoward event was the severe jar rupturing the blood vessel in the eye. An accident has been defined as "an unlooked-for mishap, or an untoward event which is not expected or designed." "Unquestionably the violent jar which ruptured the blood vessel in the respondent's eye was an unlooked-for and untoward event. It is obvious that if in such an event a result had been expected, the respondent would not have stepped off the porch, or would have unloaded the tools and gas fittings which he was carrying before he stepped from the porch in order to prevent the rupturing of blood vessel in his eye." The injury was held to be accidental.

"The primary purpose of all workmen's compensation for injured employees for injuries accidentally received in the course of their employment. The compensation provided for in such laws is intended to operate and fill the place of an accident insurance policy. The great army of employees are indispensable in carrying on the great industrial operation of the nation in the production of the necessities of life. In order to dispense with a great volume of expensive litigation, workmen's compensation laws have been substituted for the ordinary common law action for damages for injured employees. The chief purpose of all workmen's compensation laws being to compensate injured employees speedily and in an inexpensive manner. Then the necessary cost of such compensation is to be charged as a part of the cost of production. Therefore, technical rules

and fine-spun theories have no place in the construction of such laws. The award of the Industrial Commission is affirmed."—*Winona Oil Company v. Smithson*, 209 Pac. 398.

ON JULY 31, 1918, a carpenter was injured on his right forearm by a rusty nail. The injury became serious, resulting in an endocarditis which caused his death. The question of the sufficiency of evidence was raised by the Supreme Court of Pennsylvania, October 20, 1922. The court states: "An examination of the testimony, and especially that of the doctors, shows that deceased, previous to the blood infection, was a strong healthy man, working regularly at his trade, and at no time before the accident had experienced symptoms of embarrassed heart action. The physicians who examined or treated him testified that the endocarditis from which he suffered was the result of the injury referred to. Without referring to the medical testimony in detail, we find it ample to sustain the finding."—*Guthrie v. Thompson Starret Company*, 118 A. 735.

AN EMPLOYEE who suffers an injury to his eye which causes permanent impairment of the vision is entitled to compensation, although the vision can be rendered normal by the use of glasses according to the New Jersey Court of Errors and Appeals, June 23, 1922.

As the statute declares the decision of the Court of Common Pleas upon questions of fact to be conclusive and binding, the finding of that court of a one-third loss of vision to the left eye is accepted as a finality. The question is raised "whether there can be said to be a permanent injury where after an accident to the eye the normal sight therefrom can be obtained through proper lenses in glasses, for it is admitted that the petitioner's sight with glasses is normal. The contention of the prosecutor must rest upon the proposition that a workman with glasses is the equal of a workman who does not have to depend upon glasses for proper vision. . . . It seems to us, that, where one must depend upon some mechanism, braces or glasses, to enable a member of the body to function properly, and such necessity is the result of accident, that such member is permanently impaired. An eye dependent upon glasses for normal vision is not as good as an eye which requires no such aid for its vision."—*Johannsen v. Union Iron Works*, 117 A. 638.

SANITARY AND HYGIENIC ADVANCE

Improvements in Activated Sludge Treatment

C. L. Peck (*Engineering News-Record*, March 22, 1923, 90, p. 12522) believes that the total cost of sewage treatment by the activated sludge process including sludge disposal can be brought down to between twenty and thirty dollars per million gallons. He advocates preliminary treatment by sedimentation and screening, preliminary aeration for the oxidation of readily oxidizable substances, and aeration in the presence of activated sludge, aided where possible by certain substances like iron, salts, nitrates and gas wastes which act like catalysts, with subsequent sedimentation. The author thinks very favorably of paddle aeration as worked out at Sheffield and elsewhere as compared with bubble aeration and is a strong believer in the dewatering of sludge from preliminary sedimentation and from the activated sludge treatment, by his own process of flotation, by the MacLachlan process or by vacuum filtering on the Oliver plan.

Mortality in Alexandria, Egypt

The conception that tropical climates are necessarily unwholesome is not true so far as the city of Alexandria is concerned according to Dr. Emil Gotschlich (*Ztschr. F. Hyg. u. Infektionskrankh.*, Vol. 93, p. 546, 1922). His statistics indicate that the death rate of adults both native Egyptians and European whites is equal, and by no means excessive. The natives show an enormous infant mortality but the Europeans do not and although the infant mortality rises in the warm season this is not the case with adult mortality even among the foreign born.

Public Bathing Beach Chlorination

Baker describes chlorin treatment of the water at a public bathing beach which is thought to take care of any ordinary contamination of the water by infected bathers as well as the destruction of bacteria from constant sewage pollution. (*J. A. M. A.*, March 31, 1923, 80, 13, p. 907).

The treatment is effected by means

of a chlorin apparatus mounted in a motor boat. The chloroboat cruises back and forth outside the life lines at the beach. One man cares for the boat and its engine while another runs the chlorin apparatus and the water pumping engine. The latter makes frequent rough colorimetric tests of the amount of free chlorin in the water and by varying the speed of chlorin introduction and the proximity of the boat to the beach tries to keep the residual chlorin content of the beach water between 0.02 and 0.5 parts per million. If the free chlorin is kept below 0.5 parts per million its presence is not detectable by the average bather and life guards who have been in the water more or less every day for two years have shown no irritation of the skin or mucous membranes.

Treated water on this bathing beach (Washington D. C. Tida Basin) is found to average less than 100 bacteria per c.c. and *B. coli* is occasionally found in two or three of five 10 c.c. portions, whereas the untreated entering water (from the Potomac River) has a total count of 175,000, and 500 *B. coli* per c.c.

New Sewage Treatment System

A new system of sewage treatment, named "sept-aer-sed" has been in operation at Graham, Tex., since June, 1922. As the name implies it consists of septic tanks, aeration chambers, and sedimentation chambers.

In the ordinary activated-sludge process it is estimated that 95 per cent of the air is used exclusively for mechanical agitation. In this new system the preliminary treatment in a septic tank reduces the suspended solid content of the raw sewage to such a point that only the very finely divided matter passes into the aeration chamber where, with a greatly reduced volume of air, aeration is carried to a stage that results in the elimination of excess activated sludge.

Elrod reports (*Eng. News-Record*, April 5, 1923, 90, 14, p. 620.) the chief advantages of this system as: (1) The complete elimination of the troublesome excess activated sludge. (2) The small volume of air required for the production of a stable final effluent.

(3) The lack of necessity for technically skilled operatives.

The recovery of *B. anthracis* from a shaving brush five years after it caused a malignant pustule is reported by Kingsbury (*Brit. M. J.*, March 10, 1923, 3245, p. 417).

Causes of Industrial Eye Injuries

Figures from the National Bureau of Casualty and Surety Underwriters, covering about 10 per cent of the total eye injuries of the country, show a total of 32,825 injuries requiring medical aid, 7,826 tabulative injuries, and 1,400 compensable injuries. These three categories are not mutually exclusive. The total cost of all the injuries amounted to \$671,569, of which the medical cost was \$186,602 and the compensation cost \$484,967. The average compensation cost per compensable case was \$346 and the average total cost per case requiring medical treatment was twenty dollars. (*Monthly Lab. Rev.*, March, 1923, xvi, 3, p. 110.)

Flying particles and objects account for 70 per cent of the total injuries and 50 per cent of the cost. Of these abrasive wheels produce 31 per cent of the medical-aid injuries but only about 9 per cent of the total cost; objects flying from tools handled by workmen cause 9 per cent of the accidents, representing 15 per cent of the cost; and flying particles not otherwise classified cause 30 per cent of the accidents and 24 per cent of the cost.

All of the foregoing indicates the importance of goggles and other eye-protecting devices in reducing the hazard resulting in eye injuries.

The Problem of Preventive Medicine

This problem is discussed by S. R. Haythorn, (*Journal A. M. A.*, March 31, 1923), under two general headings: (1) influences that are developing an ever increasing demand for disease prevention in the practice of medicine, and (2) preventive medicine in the medical curriculum. Haythorn urges that the teaching courses in all departments be reviewed thoroughly, with the object of stressing successful preventive methods for the benefit of the students. The teaching should be carried out with a view to informing the student of the best preventive measures available, and should be directed toward preparing him for leadership in progressive health movements.

Etiology of Miners' Nystagmus

Robson (*Brit. M. J.*, March 31, 1923, 3248, p. 570) has studied the volatile contents of coal in various regions in relation to the incidence of miners' nystagmus.

Coal Field	Volatile Contents of Coal	Incidence of Nystagmus
Nonmouthshire	29.50%	4.56%
Glamorganshire, East..	29.50%	2.22%
Glamorganshire, West..	25.50%	1.90%
Cardiff	11.86%	1.15%

Inference that a gas (or gasses) is the generic cause is supported by observations that have been made in the Rhondda Valley. From 1909 to 1920 there were two peaks of high incidence of nystagmus (1914 and 1920) and during this period there was a steady increase in the use of lamps. All this is averse to the theory that lighting is the cause of this affliction of the miners.

Robson also states that it takes about twenty years for nystagmus to develop in hard coal workers while soft coal workers may be afflicted in two years, a fact tending to support the theory that the nature of the coal is of some importance.

Danger of Arsenic in Clothing

Recently an active advertising campaign has been utilized to promote the use of a solution containing arsenic (equivalent to 0.05 per cent arsenic pentoxid) as a larvicidal spray for clothing. It is proposed to induce manufacturers of woolen garments to have their materials treated with the arsenic solution to protect the cloth against moth invasion; in turn, the retailer guarantees to the consumer that the fabric will remain moth free. In view of past experiences with arsenic poisoning and the almost universal legislation against its presence (except in minute traces) in foodstuffs, wall paper and even in dyed clothing, this propaganda is surprising. Unfortunately, the public is led to believe that the government endorses the product. The advertisements state that "*Larvec*"—as it is now called—was subjected by the U. S. Bureau of Entomology to the severest test possible and approved. An inquiry reveals that the bureau does not endorse *Larvec*, nor were the tests the severest possible. It seems that a naval commandant requested the product to be examined and then turned the report—favorable as far as it went—over to the manufacturers, who capitalized it. Before it is too late, it is hoped that dealers in wool clothing will not allow themselves to be parties to the distribution of this potent poison, nor allow their names to be used in connection with a mislead-

ing endorsement. (*Jour. A. M. A.*, April 14, 1923).

Research Work of the A. S. of H. and V. Engineers

The American Society of Heating and Ventilating Engineers has evidenced remarkable vision and courage in the establishment of a special research laboratory conducted in cooperation with the United States Bureau of Mines at Pittsburgh, Pennsylvania. The *Journal of the American Society of Heating and Ventilating Engineers* for March, 1923, contains some of the first communications from this experiment station. The most important paper (by McConnell and Houghten) is a study of physiological reactions to high temperatures and humidities which includes the most careful study yet made of the limiting temperatures and humidities which can be endured when at rest in still air. A wet bulb temperature of 90° is the upper limit of compensation and a rise in the pulse rate appears to be the most sensitive index of discomfort.

Houghten and Yagloglou report a chart based on laboratory studies indicating the combinations of temperature and humidity which are found to be equally conducive to comfort in still air. According to these investigators the effective temperature coincides with the wet bulb temperature at about 132°, but at 32° the effective temperature coincides with the dry bulb temperature and the effective temperature lies somewhere between the two.

Margaret Ingels describes a new apparatus for determining atmospheric dust based on the increased resistance in a filter. This apparatus devised by Anderson and Armsbach is recommended on account of the fact that it can be used in the field without any technical knowledge on the part of the analyst but it obviously can not be expected to yield results in any way comparable to those obtained from procedures which involve direct counting or weighing of dust particles.

Absorption of Calcium in Tuberculosis

Studies by Maver and Wells "have failed to produce any experimental evidence which supports the empirical clinical evidence that calcium administration has a favorable influence upon the course of tuberculous infection. They do support the evidence of chemical studies that administration of calcium salts by mouth does not appreci-

ably increase the amount of calcium in the blood and tissues, for this is normally maintained at a level not far below the saturation point of the body fluids." (*Am. Rev. Tb.*, March, 1923, vii, 1, p. 1.)

Accidents in Mines

Rice and Adams review (*Am. Lab. Leg. Rev.*, March, 1923, xiii, 1, p. 31) the coal mine accidents for 1922. While there was a slight reduction in the total number of accidents for the year 1922, the accident rate in relation to the quantity of coal produced was higher than for 1921.

The past year witnessed fourteen major disasters (those causing five or more deaths) with a loss of 280 lives. All but three of these disasters were mine explosions. During 1921 but five major disasters were recorded with a loss of thirty-four lives.

The fatalities from gas and dust explosions per million tons mined was 0.229 in 1921; in 1922 this rate was 0.675 or nearly three times the rate for the previous year. Less than ten per cent of all mine fatalities, however, are caused by explosions while nearly 50 per cent result from falls of rocks and coal. During the past year falls of rock and coal have resulted in the deaths of 900 men, or a death rate of 1.955 per million tons mined. An examination of mining records over a long period of years discloses little if any improvement in this class of mine accidents. The probable cause of this condition is stated to be the miner's desire for production rather than safety.

Comparisons are also made with the low rate shown in the experience of the British coal fields.

The Effect of Diet on Intestinal Protozoa

Hegner reports that changes in diet exert a radical effect on the distribution of intestinal protozoa in tadpoles (*Journal of Parasitology*, ix, 51) and in rats (*American Journal of Hygiene*, 111, 180). In the case of the rats the replacement of a vegetable by an animal diet led to a marked decrease in the number of protozoa present, particularly in the case of *Trichomonas*.

Correction

The map of "State and Semi-State Institutions of Pennsylvania" published on page 364 of the June issue of *THE NATION'S HEALTH* by the Public Charities Association of Pennsylvania. It was incorrectly credited to the State Department of Public Welfare.

NEWS FROM THE FIELD

Tuberculosis in Paris

Tuberculosis still causes one-fifth of all the deaths in Paris, according to the "Bulletin de Statistique Municipale" just received.

During 1922, in Paris, among the 40,583 total deaths occurring in that city, 8,077 or 20 per cent were caused by tuberculosis. The post-war census of 1921 showed the population of Paris to be 2,906,472.

The mortality from tuberculosis of all forms in Paris in 1922 was at the rate of 297 per 100,000 inhabitants. The deaths from pulmonary tuberculosis in 1922 numbered 6,884, as against 7,078 in 1921, 6,599 in 1920 and 6,966 in 1919—namely, during the war years of 1914 to 1918—the number of deaths from pulmonary tuberculosis in Paris ranged between 8,337 and 9,218.

Connecticut Program for Backward Children

Connecticut is providing for her 3,500 backward and subnormal children, and more than 40 classes are reported as already formed in Bridgeport, Hartford, Manchester, New Haven, Somersville, Stamford, Torrington, and Waterbury. More than six hundred children have been placed in these classes, an average of fifteen children to each class. The majority of these children are undoubtedly subnormal to some extent, belonging to the definitely feeble-minded, the border line, and the dull normal groups. Some schools have two types of classes—one for children who are definitely feeble-minded and one for those who are merely backward.

Extensive Health Service for Northwestern Policyholders

The Northwestern National Life Association has conducted a health service for all policy holders and their families for seventeen years and now proposes to extend free general advice on any medical, hygienic, or sanitary subject of interest to policy holders; free periodic physical examination; governing principles on "how to live to be 90," and clinical thermometers at cost, with advice on home or office ventilation. Additions service to large policy holders may be had on request.

Pennsylvania Has Recreational Bureau

Pennsylvania has a state bureau to assist in recreational development. It assists in the selection and coordinated development of buildings and sites for playgrounds and other public uses, and undertakes to gather and disseminate general information upon the accomplishments and accepted procedure in other communities. The Bureau has been able to demonstrate by example the value of good design and has been instrumental in setting up a visible standard which has aroused public interest to an appreciation of the needs and possibilities of a broad recreational program.

In addition to the formulation and adoption of Standards for Out-Patient Service in Pediatrics, the section on pediatrics of the Associated Out-Patient Clinics has selected one institution in which to demonstrate well rounded service in pediatrics. After a careful study of various clinics of New York, the Children's Medical Division of Bellevue Hospital was chosen.

At Bellevue a demonstration of complete unity between the in-patient and out-patient service will be made possible by improvement of record transfer between ward and out-patient department. Through the employment of a part time admitting physician, improved methods of admission and distribution of patients (especially the control of contagious disease) will also be worked out. An appropriation from the Committee on Dispensary Development of the United Hospital Fund has been made to meet extra expenses involved in the clinic for this year.

The demonstration at Bellevue began February 1, and its results will be closely followed by the Section during the year.

The Executive Committee are also working on a plan for the study of results in pediatric out-patient service, and are at present trying out a tentative plan of study in three representative clinics. Their aim is self-analysis: to determine to what extent the clinic work is not effective; why, and how its effectiveness can best be tested at periodic intervals.

Further reports of the demonstration at Bellevue, and the plan for

studying results will be published from time to time so that the work may be of value to those interested in pediatric out-patient service.

Major Boyd-Hamilton Figures on Illegitimacy

The following figures on illegitimacy in different countries were presented in the House of Commons, London, by Major Boyd-Carpenter, parliamentary secretary, Ministry of Labor:

Countries	Year	Number	Rate per 10,000	
			Total Live Births	
England and Wales	1921	38,618	455	
Scotland	1921	8,756	711	
France	1913	65,568	879	
Italy	1917	32,833	477	
Belgium	1913	10,975	641	
Holland	1920	4,112	213	
Norway	1917	4,466	699	
Sweden	1919	15,060	1,494	

New Health Legislation on Statute Books

According to data of the National Health Council over two hundred new health laws have been added to the statute books, so far this year. Sixty-eight of these were in New York; Iowa has 24 new health laws; Minnesota, 21; Ohio, 13; Connecticut, 11; and Idaho, 10. The remaining states each passed less than 10, as in New Jersey, where 44 measures were considered and only four passed. Of course, in many of the states, legislation which would have been detrimental to health, as chiropractor, anti-vaccination and similar bills, were defeated.

Thirty-nine states have now accepted through legislative enactment the federal maternity and infancy act, and legislation is pending in three other states. Some of these thirty-nine were passed last year, however.

Of the new health laws of this year, forty concern municipal health, though the bulk of these are in New York state. Tuberculosis comes next with twenty-three new laws, and foods and drugs are third in the list with 19. There were eleven new laws on state health, not including appropriation measures, and 8 new narcotic acts. Physical education laws were passed in a number of states. The chiropractors got new legislation in only two states, and one of these laws was an amendment of existing statute. This cult now has recognition in over twenty-five states, however. Crank legislation, such as the ubiquitous anti-vivisection and anti-vaccination bills were, as usual, defeated. A comprehensive general health bill was vetoed in Wyoming and medical practice act concerning use of degrees was vetoed in California.

Unemployment Insurance Involves Mental Tests

Psychological ratings for all employees would be a necessity under the system of unemployment insurance predicted as a logical extension of present insurance business by J. D. Craig of the Metropolitan Life Insurance Company. The beneficiaries would be employees thrown out of employment by conditions beyond their control. Such protection could be administered by insurance companies just as workmen's compensation and group insurance are now carried. A working period prior to compensation for unemployment would need to be established, and the "drones, wanderers, and restless would be left to their own devices." It is in the detection of the "rovers," a distinct psychologic entity, that modern methods of psychology would be requisite.

Peru Educates on Community Hygiene

A group of public spirited inhabitants of Chorrillos, Peru, has organized a public extension university course with special emphasis on labor problems and personal and community hygiene. The course is under the patronage of the municipal council, which is cooperating in every possible way with the educators.

"Work, discipline, and good will will wipe out the offense committed and lead man again into social communion." This is the legend above the new white marble administration building of the Sao Paulo State Penitentiary, Brazil. A wise administration has built up a remarkable reformatory institution at this point, to which a very small proportion of inmates return for a second term. In rather sharp contrast with this inscription and the method which it indicates is the inscription over the portal of what is counted a model prison in one of our northern states, which reads: "He who enters here leaves hope behind."

Indiana Surveys All Outing Places

The Water and Sewage Division of the Indiana Department of Health is equipping a truck with laboratory facilities to conduct a sanitary survey of all lake resorts, outing places, and tourists' camps in the state of Indiana. The traveling laboratory will be established at strategic points in the lake region of northern Indiana from which points a field survey will be extended. The object is to elimi-

nate "typhoid traps" and to create "safe beauty spots" for the whole people.

Oregon Enumerates Crippled Children

Oregon has passed an act providing for the enumeration, instruction, and cost of instruction of crippled children within the state whose physical conditions makes it impossible for them to attend the public schools. A penalty for the violation of the law is provided and previous laws in conflict with it are repealed.

England Develops Occupation for Defectives

Occupational centers for mentally defective children in England, though constituting the most recent development in the training of defectives, now number sixteen and the number is still increasing. In some centers the work is further extended by the organization of special classes for defectives over school age, who are unemployed or unemployable. Home training for such children is painfully inadequate, and at these centers opportunities are afforded for learning muscular control, cleanliness, obedience, and simple manual work under skilled supervision through the Central Association for Mental Welfare.

Seven Per Cent of World Population in Cities

A total population of 1,804,187,631 peoples of the globe, only 7 per cent of which is in cities of more than 100,000 inhabitants, according to statistics compiled in Berlin on the basis of 1922 census reports. Only thirty of the seventy nations listed have cities of 100,000 or above.

Nevada Has Hospital Enabling Act

Nevada now has a public hospital enabling act whereby 25 per cent of the tax payers in any county that wants a public hospital can present a petition to the commissioners, who will put the question on the ballot at the next general election and, if carried, the commissioners are empowered immediately to proceed to provide a hospital. A nurses' registration law was also passed under which graduate nurses and all other nurses who have had twenty-eight months' training in a Nevada hospital, under the direction of a physician licensed in that state, are entitled to register without examination, provided this formality is complied with prior to July 1.

Chile Undertakes Model Housing Schemes

A practical example of Chilean interest in model housing is a group of seven cottages built by State Railways in Valparaiso for some of their employees. Planned to form an attractive architectural whole and set in their own gardens, the cottages have three or four rooms in addition to kitchen and bath, and are equipped with electric lighting. A bill is pending in the Chilean Congress for a model housing project to be carried out at the government naval station at Talcahuano. It will include 238 houses, schools, a theater, drinking water supply, and a sewer system.

Rickets Widespread in Germany

The Berlin correspondent of the *Journal of the American Medical Association* reports that, as a result of food scarcity during the war, rickets is highly prevalent among German children and permanently crippling conditions are widespread.

Professor Engel in Dortmund gave recently some useful statistics on the incidence of the disease. Of 1,384 children in Dortmund belonging to the 2-10 age group, 594, or 42.8 per cent, were suffering from rickets. The percentage of severe types of rickets was very large, approximately 21.3 per cent of those affected, while 40 per cent were of the moderate type. On an average, 10 per cent of all children demonstrated presented severe or extremely severe types of the disease. That is an extraordinarily high percentage, which is of serious moment in view of the sequels of the severe types. In an inquiry into the causes of rickets, Professor Engel's table, which appears to establish a connection between unfavorable housing conditions and rickets, may be of value.

Kentucky Code Commission Reports

The Kentucky Children's Code Commission report covering child welfare legislation prior to and through the legislation session of 1922 in collaboration with the National Child Labor is available on application to the Commission at 428 South First Street, Louisville, Ky.

Washington Representative of Health Council

Miss Cornelia Lyne, of the American Child Health Association, will serve temporarily as the Washington representative of the National Health Council. Her address is 532 Seventeenth St., N. W., Washington, D. C.

Rockefeller Aid to English Public Health

As a result of the Rockefeller Foundation gift of nearly six million dollars, the largest sum ever given in England for educational purposes, the corner stone was laid on May 31 of the new hospital buildings of the University College Hospital, London, and the new medical research building declared open.

Professor G. Elliott Smith, dean of the University College Faculty of Medical Sciences, discussing with The New York Times correspondent the Rockefeller Foundation's gift said:

"It has enabled the University College to erect a new department of anatomy and the University College Hospital to extend and develop the opportunities for teaching and research in medicine and surgery. Thus it has enabled these institutions to realize what for a long time has been their aim, namely, to effect a much more intimate cooperation among the different departments concerned in medical education and a fuller development of the opportunities for research, with precision of aim and the widest possible outlook.

"The new building has made it possible to restore the teaching of microscopic anatomy to the Department of Anatomy and to make provision for the full use of x-rays for teaching and research in anatomy. In addition there is provision for investigations in experimental embryology, and the factors that influence growth and for the use of ultra rapid cinematography as a means of analyzing and studying animal movements.

"Within the new institute it has also been possible to create special departments for physiological chemistry, for anthropological studies and for the history of medicine.

"Even more important than the provision of accommodation and equipment for study and research is the bringing together in one building, with a library and staff rooms in common, of all the workers in the different departments of medical study, who will also be put in the closest possible collaboration with those working in the hospital. Above all, the gift of the Rockefeller Foundation has made the University College and the hospital associated with it a permanent symbol of the friendship and community of aims of the medical men on the two sides of the Atlantic and an instrument for maintaining and developing this cooperation and extending its influence throughout the British Empire and elsewhere."

New Athletic Officer at Annapolis

The position of athletic officer, regarded as one of the most important on the staff at the Naval Academy at Annapolis will shortly be filled by by Commander Byron McCandless, now in Turkish waters.

Commander D. L. Howard was relieved of this duty about the first of the year, and Lieutenant B. F. Perry has been acting in that capacity since.

High Schools Now Adopt Hygiene Courses

The Board of Estimate of New York City, after exhaustive tests as to the merits of the Red Cross course in home hygiene and care of the sick, on May 18 appropriated funds to install it as part of the curriculum in nine girls' high schools. Plans are under way for its extension to other high schools as soon as the teaching facilities permit. The seven Red Cross nurses available for the purpose are for the first time in the city's history enrolled as regular high school teachers.

The Red Cross Promotes Indian Welfare

A plan is under way by the Red Cross to solve the health problems of the Indian through aid in medical and social lines. It is proposed to begin with community centers at Zuñi, on the Zuñi Reservation; Dulcem Jicarilla Reservation; Oraibi, Arizona; Tohatchi, N. M., Pima Reservation; and in at least two pueblos of the Rio Grande Valley. Where community centers are impossible, the Red Cross will aid the local hospitals and schools in some way. A field worker will be appointed to the work and another year the Junior Red Cross will be assigned to certain parts of the project.

Miss Abbott Elected Head of Social Workers

Miss Grace Abbott, chief of the children's bureau of the Department of Labor, was unanimously elected president of the National Conference of Social Work at the business session of the fiftieth anniversary meeting. Toronto, Ont., was selected as the scene of the next convention.

Californians Using Much More Milk

An increase in the consumption of dairy products in the state of California is reported for the past year amounting to 13,500,000 gallons; also a per capita increase in the consumption of butter from 21 to 22½ pounds.

Social Welfare Publishers Hold First Meeting

The first annual meeting of editors and publishers of social welfare publications in the United States and Canada was held at Washington, D. C., on May 18. The meeting was held in conjunction with the fiftieth anniversary of the National Conference of Social Work.

A committee was appointed to arrange for subsequent meetings and to work out ways and means for co-operation in editorial, circulation, and advertising problems.

Among the speakers at the meeting were: Paul Kellogg, *The Survey*, George J. Hecht, *Better Times*, Harold S. Buttenheim, *The American City* and Phillip E. Jacobs, *Journal of Outdoor Life*, all of New York.

Rockefeller Foundation Grants Many Fellowships

During 1922 a total of 226 fellowships were granted by the Rockefeller Foundation and its various boards. Seventeen countries were represented in these fellowships. Seventy-nine were administered by the International Health Board, sixty-two under the China Medical Board, and sixty-two were fellowships in physics, chemistry, or medicine, supervised by a committee of the National Research Council.

Undue Tuberculosis Among Porto Rico Laborers

The laboring classes are reported as suffering an undue proportion of the tuberculosis rate of 200 per hundred thousand in Porto Rico. In the industrial cities on the practically level coast belt the average is about 8 per cent of the total death rate. In the mountainous central portion it is less, averaging about 4 per cent except in certain industrial towns, particularly those dependent upon the tobacco industry. These high rates are not due to the climate, but to working conditions in part, but for the most part to housing conditions, which cause much overcrowding, and to a diet, considered ideal for the propagation of the disease, consisting of black coffee, rice, and beans in great quantities, and sometimes bananas, oranges, and plantains complete the list. The economic status of the average laborer is such that he cannot break the vicious cycle even when proper medical advice is obtainable. The great mass of the people on the islands are engaged in sugar, tobacco, fruit raising, and coffee industries.

Pennsylvania Summer Course in Sanitation

A six weeks' summer course in sanitation is announced by Col. P. M. Ashburn of the Army Medical School at Carlisle Barracks, Pennsylvania, for health officers attached to the state health department of Pennsylvania. The course is a part of a plan on the part of the State Health Commissions of Pennsylvania to appoint all full-time district sanitary officers only from men properly trained in public health work.

Shortage of Hospital Beds for Mental Patients

The annual report of the New York Academy of Medicine announces a marked shortage of hospital beds in New York for the treatment of nervous and mental diseases and emphasizes an intolerable condition of crowding in the state hospitals. The report covers many subjects of interest to public health among which the notable features are: Codification of child welfare laws; the establishment of a hospital information bureau; the collection of hospital statistics; the city's budget in relation to health and hospitals; and matters pertaining to health legislation.

Industrial Workers Evince Interest in Insurance

That industrial workers are taking increasing interest in the protection afforded by life insurance is shown by 1922 figures just issued. The Prudential leads in new industrial insurance for 1922; its total writings being \$631,814,968. The Metropolitan is next with \$563,458,161. The John Hancock has \$196,715,935 and the Colonial of New Jersey \$15,844,747. The Morris Plan wrote in industrial insurance \$6,292,975.

The total new business written by companies licensed in New York was \$6,592,293,742. The total new ordinary and group business of New York companies amounted to \$2,444,640,468. The amount of companies of other states was \$2,823,826,488 and industrial \$324,126,786.

St. Louis City Psychiatric Clinic Assured

The psychiatric clinic inaugurated about a year ago at St. Louis under the auspices of the National Committee for Mental Hygiene was formally taken over May 1 by the Director of Public Welfare, Nelson Cunliff, when it became a city institution. Dr. William L. Nelson has been appointed as chief psychiatric clinic director.

Harrison Act Shows Decreased Use of Narcotics

A recent statement issued by Federal Prohibition Commissioner Haynes in the columns of the *New York Times* indicates that the per capita consumption of narcotic drugs has shown a marked decrease under the administration of the Harrison Drug Act, and refute the statement so frequently made, he says, "that drug addiction and the use of narcotic drugs are on the increase in the United States."

Official figures on imports of narcotics and their distribution showed that sales by manufacturers for the fiscal year ended June 30, 1921, were sufficient for one and seven-eighths grains of morphia per capita, while for the fiscal year 1922 they were reduced to seven-eighths of a grain on a per capita basis. The figures of course were not inclusive of smuggled narcotics. The per capita consumption of cocaine for 1921 was given at one-third of a grain, while that for 1922 was reduced to one-fourth of a grain. The frequent statement that the per capita opium consumption as around thirty-six grains is based, he said, on pre-prohibition statistics.

"There is no country in the world in which there exists a more efficient method of checking the importation, distribution and consumption of narcotic drugs than in the United States under the provisions of the Harrison act," said Commissioner Haynes. "Every ounce of opium or cocaine leaves imported into this country can be traced directly to the ultimate consumer."

Committees Collaborate on Lighting Code

The Federated American Engineers' Association has announced the personnel of a sectional committee appointed to prepare a lighting code for the nation's schools, in collaboration with similar committees representing the American Institute of Architects and the Illuminating Engineering Society. The primary object is to eliminate the waste represented by the faulty eyesight in school children which it is estimated as existing in ten to thirty per cent. The care of the eyes of school children is but an extension of the movement for eye conservation in industry. Louis B. Merks of the Illuminating Engineering Society and Sullivan W. Jones of the American Institute of Architects are in active charge of the committee organization.

The zoning ordinance (No. 922) adopted for the city of Baltimore is published in the May 25 issue of the *Baltimore Municipal Journal*.

Fatigue Research Board Makes Report

The Third Annual Report of the Industrial Fatigue Research Board, London, to December 31, 1922, just issued contains a full account of the work carried out and projected during 1922. In addition, it includes personal contributions from the investigators to the Board dealing with special aspects of the work, namely: "Some conditions concerning Technique," by E. Farmer, M. A.; "The Use of the Sample in Investigation," by May Smith, M. A.; "Some Observations on Industrial Conditions with special reference to Cotton Weaving," by S. Wyatt, M.Sc.; "Atmospheric Conditions and Industrial Efficiency," by H. M. Vernon, M.D.; "Future investigations in the Pottery Industry," by H. M. Vernon, M.D.; and "A Note on Machine Design in relation to the operative," by H. C. Weston, M. J. Inst. E.

Campaign Against Malnutrition Outlined

"The Campaign against Malnutrition" is the title of a report prepared by the Advisory Committee on Foods and Nutrition of the National Health Council in cooperation with the United States Public Health Service, and published as Public Health Bulletin No. 134. This bulletin supplements the general health education program covered in another report and shows where intensive work with malnourished groups belongs in the general health program. The suggestions made are on the basis of nutritional work to suit conditions in a city of 25,000 to 30,000 inhabitants, but the measures are easily adapted to larger or smaller places and an appendix adds data vital to the conduct of nutritional work in rural districts. The staff required, the methods of work, records of progress and results, the equipment of centers, how to secure public support for the work, and the economic bearings of the whole subject are faithfully treated. The educational possibilities of the work are emphasized. The use of this bulletin as a handbook by persons responsible for the health care and health education of children is recommended. The authority of the principles outlined is fully attested by the individuals and organizations represented on the committee, headed by Joseph Goldberger, M. D.

The Dominican Republic will send an official delegate to the Leprosy Congress to be held in Paris this year.

HEALTH PUBLICATIONS REVIEWED

Nutrition of Mother and Child

A book just issued on "Nutrition of Mother and Child," by C. Ulysses Moore, M.D., although it contributes nothing new to this important subject, is interestingly written and should be of value to both professional and lay people.

J. B. Lippincott Company, Philadelphia, 1922.

Laboratory Handbook for Dietetics

This little book, by Mary Swartz Rose, consists mainly of tabular matter for the use of dietitians, chemists, and physiologists. It constitutes a handy reference book. It is technical but not so much that it cannot be used as a reference book by nurses, for which purpose it is recommended.

The Macmillan Company, New York, 1922.

Cerebrospinal Fluid in Health and in Disease

Thoroughness in his treatment of the subject and freshness in his manner of handling it, mark the text of the first edition of "Cerebrospinal Fluid in Health and in Disease" by Abraham Levinson, M.D., and the fact that the book comes so soon to a second edition attests to its value as a contribution. In the second edition many of the older illustrations have been discarded and new ones added. The tabular matter has been completely revised and the chapter on clinical examination simplified. An extensive table is given on the findings of cerebrospinal fluid in various diseases and the bibliography on the subject is brought down to date. The chapter on pathology has been entirely re-written and the technic of cistern puncture has been added.

C. V. Mosby Company, St. Louis, Mo., 1923.

A Study of American Intelligence

In this book Professor C. C. Brigham gives a very clear description of the alpha and beta examinations given to the army draft with an analysis of the significance and reliability of each of the individual tests. He then proceeds to a detailed analysis of the scores made by different racial components in the population as evidenced by the record of a sample group of 15,543 white officers, 81,465 native

born white recruits, 12,492 foreign born white recruits, and 81,465 negro recruits as based on a combined scale in which the three types of examination given receive appropriate rating. The main point which emerges is the marked difference in rating obtained by different racial elements, England, Holland, Scotland, Germany and Denmark rate higher than the native born white draft in the order named. Canada, Sweden, Norway, Belgium, Ireland, Austria, Turkey, Greece, Russia, Italy, Poland and the negro draft rank lower than the native born white draft passing from highest to lowest grades. Dr. Brigham then attempts to reclassify his national groups under the three racial heads, Nordic, Alpine, and Mediterranean, concluding that the Nordic stock is markedly superior and pointing out the effect upon the average mentality of the American population from a replacement of Nordic by Alpine stocks in the immigration of recent years.

Princeton University Press, 1923.

"Rickets," by J. Lawson Dick

Dick's book on Rickets is timely, and the profession is gradually becoming more interested in one of the most common nutritional disorders in childhood. The author handles the subject well and covers nearly every phase of it although it is unfortunate that he leaves out some of the most recent work on the chemistry of phosphorus which has been done in this country as well as abroad. The chemical blood findings in rickets, according to latest research, differ from those in scurvy and the conclusion of this in a system on the treatment of rickets seems very important. The references in the book are not numerous but the author has used good judgment in picking out the most important historical and present-day substantial work. With the exception of blood chemistry it is quite complete, including even the history of the subject. Chapter 25 is of particular interest to public health workers. Chapter 24 states that conditions in slum areas tend to rickets. It discusses the relationship of rickets to the national health as well as in the army recruiting records. The author limits his statistics to England, which

is expected from a British author. Some of the theories regarding food factors in rickets might be challenged by people who are engaged in research on the subject. As a whole, however, the author holds to most of the acknowledged views on the subject.

E. B. Treat & Co., New York, 1922.

Pirquet's System of Nutrition

In this small book of 96 pages, a Professor Clemens Pirquet gives a summary of his new system of nutrition which was originally published in Germany in four volumes. As is well known, the author bases his system on body measurements especially the sitting height. He has also done away with the use of the calorie as a unit of theme and has substituted the nem for it. A good deal of criticism has been hurled against this Pirquet System and there is no doubt but that in this country the Pirquet System would not apply itself as easily as in Austria. The author must, however, be given credit for his ingenuity, for his accuracy, and for the diligence with which he worked out his system of feeding. Pirquet has been able to feed hundreds of children by means of this new system and seems to have accomplished a great deal.

The book also contains a chapter on treatment of tuberculosis and another chapter of feeding as preventive medicine. It also contains an extensive bibliography on this new system. It is a veritable treasure of information for anyone interested in the newer trends of feeding.

W. B. Saunders Co., Philadelphia, 1922.

Getting Ready to Be a Mother

This book follows closely the previous work of Carolyn Conant Van Blarcom on obstetrical nursing. As in the first book, a great deal of information is imparted by the author in simple language. The illustrations add materially to the book. It is interesting to note that the author has left out a discussion on accidents in pregnancy so common in other books. This omission will do away with the mental anxiety produced by discussions on accidents. It is one of the few books that can safely be handed over to an expectant mother.

The Macmillan Co., New York, 1922.

History of the National Tuberculosis Association

The author of this book filled a vacant space in American medical history as there has been no treatise incorporating a contribution of American medicine in the history of tuberculosis. Although he has limited himself to the story of the National Tuberculosis Association, the book throws light on the life and work of many outstanding figures in American medicine. The personal touch added to many biographies in the book makes its reading of still greater interest. The author was entirely too modest in omitting his own biography. Many a reader would have liked to find out the life history of so interesting a writer as is Dr. Knopf.

National Tuberculosis Association, New York, 1922.

The Health Speaker's Handbook

This little booklet of fifty-two pages is a manual of the technic of health propaganda from the platform, published by Iago Galdston, M.D., secretary, industrial and speakers service of the New York Tuberculosis Association.

The subjects dealt with include the training of speakers; the selection of pertinent and suitable lecture material from the vast amount of material available on health matters; the selection and use of literature, charts, slides, blackboard drawings, and moving pictures; the adjustment of such materials to the spoken lecture. Considerable emphasis is placed upon the industrial worker's need for health education, and the approach to him through the shop and through the union, and the adaptation of materials to appeal to men in the different trades.

An appendix contains a number of outlines organized about tuberculosis and adapted to various audiences.

New York Tuberculosis Association, 10 E. 9th St., New York City.

Eating Vitamins, by C. Houston Goudiss

This is a very pleasant little dose. It contains the interesting story of the development of our knowledge of the accessory food factors served in popular cafeteria style and well garnished with illustrations of famous men like McCollum, Funk, Hopkins. As side dishes are photographs of famous "calves of destiny," and of delectable articles of food like cabbage, oranges, turnips, eggs, liver, and milk. Menus and recipes rich in vitamins form more than half the book: as we read, we wonder what has become of the

formerly well-known calorie of which we used to hear so much.

The value of a book like this depends entirely on how much the reader knows about the other important constituents of food. It is probably a truism to state that even vitamins have only a relative importance in the normal dietary, and that eating vitamins, like eating calories, is only one part of the day's nourishment.

Funk & Wagnalls, New York & London, 1922.

Syphilis As Affecting the Innocent

A recent study of the social effects of syphilis on the family and the community, by Harry C. Solomon and Maida Herman Solomon, is a valuable addition to the literature of syphilology especially for the layman interested in the implications of this disease as effecting our social structure.

Congenital syphilis is always syphilis of the innocent. "The saddest part of syphilis is that it is transmitted to the second generation." A brief description is given of the "Hospital Schools" of Europe, established for syphilitic children, where treatment, excellent care, and education are carried on simultaneously. The United States is sadly lacking in this respect. "Many people erroneously feel that if a child has seemed to escape without early symptoms (often present but undiagnosed) the danger line has been passed, but the symptoms of congenital syphilis may appear at any age in babyhood, childhood, early or late adolescence, or even in adult life."

This work also gives much valuable information on the relation of syphilis to blindness. Syphilis needs the same careful consideration now given to gonorrhea as a cause of loss of vision.

The cost of syphilis to the community is appalling. For the writers' own state, Massachusetts, it is approximately \$225,000 annually. Less than 10 per cent of this is expended for prevention while over 90 per cent is used for the maintenance of patients who have passed the stage in which help is available.

To the sociologically inclined reader the book is of much interest. The method of treatment is scientific, and the conclusions are reasonable and the recommendations possible of execution. The book will be of assistance in furthering public and private action that there may be an adequate attack made on the scourge of syphilis.

1. Syphilis of the Innocents, H. C. Solomon and M. H. Solomon, U. S. Interdepartmental Social Hygiene Board, Washington, D. C., 1922.

Social Work, an Outline of Its Professional Aspects

A small thirty-one page pamphlet called "Social Work, an Outline of Its Professional Aspects," describes briefly, yet comprehensively, the various lines of activity open to the social worker, telling the sort of training necessary for work along each of these lines.

In this booklet, recently published, the different kinds of social case work which have developed in the profession, including work with families, with children in and out of the schools, with delinquents, and with the physically and mentally incompetent, are adequately reviewed. Paragraphs are devoted to the comparatively new branches of occupational therapy and psychiatric social work. There is a chapter dealing with social group work, such as settlement club work, independent club work, and work in the Christian associations. The section devoted to community organization is especially interesting and informative, embracing as it does, rural organization, health organization and education, economic organization and development, housing, leisure time activities, and neighborhood organization.

The book also contains information regarding institutional work, psychological work, personnel work in industry, work with racial groups, public health nursing and nutrition work, besides that very important branch of social work known as social research. There is a list of training schools which are members of the American Association of Training Schools for Professional Social Work—and a short paragraph on salaries paid in the social work field.

American Association of Social Workers, New York.

Books Received

- SOCIAL WORK IN HOSPITALS.** By Ida M. Cannon, R.N., pp. 247, Russell Sage Foundation, New York.
- EMPLOYEES COMPENSATION COMMISSION—SERVICE MONOGRAPHS.** U. S. GOVT. No. 12. By Gustav A. Weber, pp. 86, D. Appleton and Company, New York.
- THE PUBLIC HEALTH SERVICE.** By Laurence F. Schmeckebier, pp. 298, The Johns Hopkins Press, Baltimore.
- SOME MEDICAL ASPECTS OF OLD AGE.** By Sir Humphry Rolleston, F.R.C.S., M.D., D.C.L., LL.D., The Macmillan Company, New York, 1922 (pp. 170).
- THE CONQUEST OF CONSTIPATION.** By William S. Wash, M.D., pp. 265, E. F. Dutton & Co., New York, 1923.
- CEREBROSPINAL FLUID.** By Abraham Levinson, B.S., M.D., pp. 266, C. V. Mosby Company, St. Louis, Mo., 1923.
- STAMMERING, CLEFT-PALATE SPEECH, LISPING.** By Kate Emil-Behnke, pp. 101, Chicago Medical Book Company, 1922.
- RULES FOR RECOVERY FROM TUBERCULOSIS.** Lawson Brown, M.D., pp. 217, Leo & Febiger, Philadelphia and New York, 1923.
- THE PRE-SCHOOL CHILD.** By Arnold Gesell, Ph.D., M.D., pp. 264, Houghton Mifflin Co., Chicago, 1923.

School Architect's Problems

(Continued from Page 416)

interest of the pupils can take the place of a swimming pool and where installed should be equipped with good filters, a sterilizer, and with a vacuum appliance for removing sediment and lint.

One of the most troublesome features in school buildings has been the construction and finish of class room floors. The corridors and toilet rooms have been satisfactorily floored with tile or terrazzo and where properly laid these flooring materials have proved very satisfactory for the purpose. These materials are too hard and cold to be used for class room floors. The use of wood floors has always been objectionable on account of dust, noise, and the gathering of dirt in the cracks. To overcome the dust problem the practice of oiling wood floors has been extensively tried out but this has a number of disadvantages and is not sanitary. This also leaves unsolved the problem of the dirt that gathers in the cracks. To a certain extent the use of the vacuum cleaner overcomes these difficulties but the ideal floor should be a continuous surface without joints or cracks, should be a moderate non-conductor of heat and should be quiet and easily cleaned. There have been a number of methods tried out with very fair degree of success using either composition, mastic, or battleship linoleum. Each of these floors is laid directly on the concrete slab, if the building is of fire-proof construction. The various composition floors are laid approximately one-half inch thick and are spread over the surface practically in the same manner as concrete is laid, with a cove and base formed at the walls of the same material, thus eliminating not only the wood flooring but the wooden base. Where properly laid over good material this makes an ideal sanitary floor. The mastic flooring is laid in the same manner except of approximately $\frac{1}{8}$ inch or $\frac{3}{16}$ inch thickness instead of $\frac{1}{2}$ inch. The mastic floors are somewhat warmer under foot and are slightly quieter but do not have quite the same firmness nor smoothness of surface. Battleship linoleum is the most recent material used for school floors and, where properly laid, makes an ideal floor material.

In any case it is desirable that all school floors should be cleaned daily with the vacuum cleaner but the use of these types of floor finish greatly

reduces the amount of dust as the elimination of the joints and cracks in the boarding does away with the reserve of dust these always present to be stirred up with every footstep.

Where the advantages to health and interest as above sketched are properly supplied in the modern school, experience shows that the pupils look forward with more eagerness to at-

tending such a school and are more happy in the enjoyment of all of its mental and physical privileges.

The illustrations used in connection with this article have been taken from the Benjamin Franklin Junior High School building of New Castle, Pa. This building has attracted a great deal of favorable comment especially with reference to the features mentioned in this article and has been selected for illustration for the reason that it is one of the latest and possibly one of the best equipped of the recent public schools.

Milwaukee Weekly Cardiac Clinic

THE weekly cardiac clinic at the Out-Patient Department of the Milwaukee Children's Hospital was established more than three years ago. At the outset it was deemed essential according to Dr. Malcolm F. Rogers, director of the clinic, that the decompensated case be put back in a compensated state. Soon the idea of keeping the child in the best cardiac condition possible came to the at-

the condition of the individual case.

At first entrance a complete physical examination is made, supplemented by a special cardiac analysis, including (1) history of complaint, (2) previous illnesses bearing a possible etiologic relationship to any existent cardiac disease, (3) special cardiac examination including electrocardiographic and oftentimes x-ray and fluoroscopic work. Blood and urinary analyses are routine.

The staff is constantly on the watch for infections of teeth and tonsils, for chorea, rheumatic fever, and syphilis. It is the general policy at this cardiac clinic to treat all suspicious foci of infection as being positive. Dental caries and tonsillar involvement are not tolerated; choreics and rheumatics are promptly hospitalized.

As soon as the cardiac is discharged from the hospital, he again reports to the cardiac clinic. Week after week the cases are gone over with the same thoroughness. Notations regarding the number of hours of bed rest, the amount of exercise taken, and the individual's ability to tolerate the same are tabulated, together with a history of infections encountered. An accurate record of weight variations with suggestions as to dietary and general hygienic improvements is kept. The children, divided into small groups, are given graduated exercise at each visit. The services of two Junior League members, who give their time to this course, Miss Florence Patton, having charge of the medical follow-up work, and Miss Joy Shadbolt, director of graduated exercise classes, have been of great value in the work being carried on by Dr. Malcolm F. Rogers.



The heart patient, no less than the normal child, thrives on exercise. The only difference is that the activities of the cardiac patient must be precisely regulated and continuously supervised.

tention of those in authority and the organization was enlarged to meet a constantly increasing demand.

At the present time children report weekly, bi-monthly, monthly or at least every six months, depending on

Recreation in Hospitals and Its Therapeutic Values

(Continued from Page 479)

wholesomely adjusted themselves to institutional régime. Many chronic cases of long standing have been so greatly improved through recreational-occupational activities that they have been sent on to definite constructive work in and about the institution. Only a few weeks ago in one of the large eastern hospitals several men who had never before during their stay at the institution been capable of doing any sort of work were taken from one of the occupational-recreation classes, where it was felt that a certain gain had been made in stabilizing their reactions, and were placed in one of the work squads shoveling snow and cleaning roads. At last reports they were working comfortably with the other patients in the squad. The whole scheme of reeducation, occupational training and recreation is definitely planned to lead through various grades of progress into practical vocational activity, in-

side of the institution for those whose improvement is sufficient and outside for those who having made greater gain are deemed eligible for parole.

With the other large group of mental cases, the mental defectives, there has been for years recognition of the training and socializing values of organized play. Alexander Johnson⁴ tells in his recent book of the large place which was given to recreational activities in this work in this field in Indiana. The mental defective needs two primary types of training; for individual competence and for social adjustment. The great majority of the mental defective, especially if they are given special care when they are young, are capable of a certain

amount of development. The older and more conventional attitude is to accept their condition, to say that they are incapable of training, and that therefore they should have permanent custodial care. This is doubtless true of many of them, but on the other hand the child who though incapable of great progress can be, through a course of training extending over a number of years, brought from a mentality of approximately eight years, which would otherwise be his permanent mental level, to a men-

sults. Here, as with the insane, it is very essential that the work be made interesting and appealing and this is best done by giving it a recreational aspect through appeal to the fundamental play instincts of childhood.

From the standpoint of the socialization of the mental defective, play activities make a large contribution; untrained their individualism runs riot, but with proper training they can be fitted into the society of which they are a part. If of lower mentality they will continue in the institu-

tion, or if having shown sufficient improvement they go out to take their place in the world as "hewers of wood and drawers of water," in either case they will have a more normal recognition of their relations to others because of the social training they have received through play. We have only to recognize how large a part play contributes to the formation of our fundamental ethical-social concepts to realize the value of play



Work in the wood-working class is play because the desires of the child are followed as far as possible in what he undertakes to make. Note the toys on the cupboard at the left and on the window bench in the center. Hundreds of toys are made by the children at the Vineland Training School each year.

tal age of ten or eleven years has, while gaining but little, really attained a great deal because he has passed from the level of incompetence to one of greatly improved personal ability. The difference between an eight year mentality and one of eleven years is vastly greater, as a measure of individual competence, than it seems to be upon mere casual thought.

It is not necessary to enter here upon an extended discussion of the validity of the classification according to the two types of intelligence, the verbal and the manual. The institutions which care for mental defectives are finding that such intelligence as their wards possess is largely of the manual type and the training provided, being almost entirely of this sort, is showing some remarkable re-

sults in socializing mental defectives. It is almost entirely through play that we, all of us, regardless of our mental ability, learn loyalty, team work, self-control, respect for authority, and in fact almost all of our social ideals.

The story is told at Vineland Training School of a lad of sixteen with very low mentality who was brought there by his parents, people of wealth and culture. He fitted into the régime very readily and proved a good patient in every way. When he had been there for some months his father visited the institution. Going to the office, he received a very favorable report from the superintendent, but requested the privilege of visiting the boy while at his work. Unannounced he went to the dairy and found his son busily scouring aluminum pans

4. Johnson, Alexander: *Adventures in Social Welfare*, Part 3.

and buckets. His father asked him if he wanted to go home and, receiving an emphatic negative, he asked the boy why he liked the school. The boy replied, "I have a fine job here. Don't you think my pans look bright and my room is all in good order?" "Yes," said the father, "I do, but do you work all the time?" "Oh, no," the boy answered, "We play a lot, and I have lots of boys my own size to play with and we have fun all the time."

When alone with the superintendent this father stated that he had spent thousands of dollars and infinite pains with the boy but had never seen him happy before. "Now," said he, "he is happy. He has found work that to him is interesting, companions that are congenial and has fun all the time. For the first time in years I am content. I want my boy to stay here."

This story is in its essentials being repeated wherever progressive men and women are using interesting work and wholesome play as a means of training those who live in perpetual childhood.

Recreation is making a real contribution to the care of those who are fighting tuberculosis in hospitals and sanitariums. A very definite technic has been worked out for these institutions and those who are most progressive are recognizing the necessity for wholesome interests and activities to tide over the period of convalescence. This is the most difficult time with the average patient. As he begins to improve and to build up the reserve of strength which is necessary for the final victory over the disease he becomes more and more restless in his enforced idleness. At the best of the institutions the discipline in regard to long periods of rest is of course rigid, but combined with this there must be certain diversions and physical activities if the patients are kept in such mental condition that the greatest good may be expected from their treatment. Many a patient in a sanitarium has suffered a relapse through his restlessness or through the homesickness which found a fertile field for growth in the lack of wholesome interests and activities. It is certain that any games or activities of any sort that are undertaken at a sanitarium must be carefully supervised, and be under the direct and rigid control of the medical officers, but in many such places today very wholesome recreational activities are being conducted.

At a large sanitarium in the Adirondacks last summer the writer saw several hundred convalescents sent off in

mid-afternoon for an hour's walk. The great majority of them started along a state highway for a leisurely stroll and as soon as they were around a bend out of sight of the institution perched like black-birds on a hundred yards of white railing, which defined a long sweeping curve in the highway, and there they sat during practically all of their hour's "walk." Certainly they were in the open air and the highway furnished a change of scene, but it would have been much better for their minds and their bodies had there been someone in the institution charged with a definite responsibility for planning for these daily walks.

The possibilities here were more pronounced since it was a country where an abundance of historical and scenic interests were available within a very short distance, and one could not but feel that the broad lawn under wholesome leadership might have been utilized for bowling greens, croquet courts, and putting greens, and a whole series of contests organized both individually and in teams, extending for weeks the intensive interest and activity, and furnishing not only opportunity for occupation of mind, as well as of body, but also for a large amount of conversational material and argument to occupy the thought and attention of spectators, as well as participants.

At this institution occasional dramatic and musical entertainments are produced by the patients, and one of the staff with whom I talked, expressed to me most intelligently and enthusiastically the appreciation of the possibilities which had been discovered through the little which had been done. No single contribution to that institution with its hundreds of patients could be greater than that which could be made by placing on the staff of the hospital a person with practical experience in recreational activities, who could give constant thought and organizing ability to the task of providing a wholesome, varied program of games, music, entertainments, dances, and of promoting every activity and interest that would normalize, stabilize, and broaden life for these patients. The same opportunity exists in a large number of sanitariums.

Opens a New World

A notable example of wholesome recreation is found at three hospitals in and near Pittsburgh where a complete wireless equipment has been installed in each. A patient who has a great deal of skill in handling wire-

less equipment has personally supervised the installations. In the three institutions between three and four hundred beds are equipped with ear phones so that at almost any time, day or night, a patient can reach out and, securing a conveniently suspended receiver, place it to his ear and be in touch, as long as he wishes, with the great world outside, hearings news, sporting and business reports, and music of all sorts from widely scattered points. One of these institutions in Pittsburgh "has been listening in" on New York, Schenectady, Detroit, Washington, and Chicago, as well as on two stations in Pittsburgh. The mental stimulus and emotional appeal of this sort of thing is of great value, and by means of the individual phone, which has proven much more popular than the amplifier, each patient is allowed to participate as little or as much as he desires in this sort of activity.

In the hospitals that are taking care of the physically handicapped, recreation is accomplishing a work that has large practical and sentimental values. No more stirring experience can well be imagined than that which comes when one sees a serious and intense group of men and women who are dealing with an institution full of crippled children as they plan and debate the adaptation of all sorts of games to the capabilities of their maimed and disfigured wards. Many of the devices which have been introduced and means which are taken to bring real, joyous play to these hopelessly crippled individuals are really thrilling. Of almost equal appeal is the work that is being done for the deaf and the blind, and all sorts of devices have been arranged so that they may play regardless of their handicaps.

The value of the type of recreation that these handicapped people are getting cannot be overestimated. One of the most serious phases of such a condition is the "inferiority complex" which the handicap creates in the mind of the individual. A boy or girl facing life with this idea in the background of the mind has often a more serious burden of his own creation than that which nature or accident gave to him. Often it is possible upon the play field, in the gymnasium, or even in the wards, for him to measure his mental alertness, strength, agility, or skill with his fellows, and competition with those who are normal in every way, is particularly valuable, not simply for the development of individual ability but for over-

coming the feeling of inferiority.

A school for the blind in Michigan had last fall the unique distinction of being represented on the football field by a team which made an excellent record. This team was made up of four boys who were totally blind and seven with partial vision. They played regular intercollegiate football with no modification of the rules, against teams representing the high schools in neighboring communities. Those who saw the games report an excellent quality of football and a wonderful influence upon the boys.

In hospitals that are handling general cases there is a large opportunity for recreational activities. While a great majority of the patients are there but a short time, in every such institution there are people who spend long months of dreary confinement. The institution which recognizes to the fullest extent the human element in its clientele is making a definite provision for recreation for such people. These activities range all the way from dolls and toys for little children to program and entertainment and even active participation in music and simple games by the patients.⁵ Here again recreation is contributing much, not simply from the standpoint of corrective physical activities, but it also means much to the mental condition of individuals who are there as patients.

There is a secondary value in this whole subject which must not be overlooked. Those who are dealing with the general public cannot fail to recognize the attitude which many people still maintain toward the hospital and all similar institutions, and the readiness with which any charge of cruelty or mistreatment is accepted without thought or regard to evidence. The background for this attitude is of course one of ignorance and misunderstanding. It is rather difficult to provide popular education as to the technical aspects of hospital care, and to make people realize that in the great majority of cases of abnormality or sickness no other care can possibly be provided that will be as effective as that of the hospital, but excellent educational opportunities are offered by emphasis upon the human side of the hospital and no aspect of its work so readily appeals to people at large as recreation. The moment we convince the general public that the old "asylums" with prison discipline no longer exist, that in their

place we have modern hospitals, whose patients are happy and contented, popular ignorance and misunderstanding, the materials upon which "yellow" journals fatten, will disappear.

A visit to a large hospital for the colored insane in one of the southern states brought out the fact that out of two thousand five hundred inmates only four were on that day under any restraint of any kind. After spending a day at the institution and seeing the remarkable results being achieved in the way of contentment and happiness, the question was asked of the superintendent, "How do you do it?" The whole spirit of the place was embodied in his laughing, laconic reply, "Watermelons!"

At an institution for mental defectives with six hundred patients, a happy contented group, the question was asked, "What is the best description of your methods?" and the reply was, "This is simply a great kindergarten." At another institution for mental defectives with two thousand two hundred patients it was reported at a staff meeting that for forty-eight hours there had been no disciplinary problems of any sort. In answer to the question as to how it was accomplished the superintendent said, "Our children play."

When we can make people understand that recreation and wholesome occupations are helping the insane by improving their physical and mental condition and affording at least some hope of their permanent improvement, that we are making our institutions for mental defectives great kindergartens, that we are breaking down the monotony of life at the tuberculosis sanitarium, and that we are helping the sick and those suffering from physical disabilities to win their fight against handicap and disease as well as against their own feeling of loss and failure, we will gradually begin to see a changed attitude on the part of our public.

Where recreation is being used in such institutions it is proving of great value for constructive publicity. It is much better for the metropolitan journals to carry a half page write up, with photographs, of the outdoor production of *Midsummer Night's Dream* by two hundred blind children, as was done in Philadelphia, than it is for us to allow our only publicity to take the form of scare-head reports of investigations which emphasize and exaggerate the mistakes and failures which will occasionally occur even under the best and most careful institutional management.

Recreation affords a constructive

approach to the patient in the hospital and also a constructive approach to the rank and file of people whose intelligent interest and support are necessary for any permanent progress.

Trachoma in the United States

At the twentieth annual conference of state and territorial health officers with the United States Public Health Service, Dr. John McMullen, secretary of the standing committee on trachoma reported on the progress of trachoma work in this country.

The general work included 27 clinics in rural communities at which more than five thousand people were examined, and 686 cases found. Four hundred and ninety-eight operations were performed, 158 being done under general anesthesia. The majority of the clinics were in Kentucky; others in Ohio, Texas, Mississippi, Tennessee, and North Carolina.

The most prominent piece of trachoma work done, according to Dr. McMullen, was a clinic conducted in south Georgia, by the service which furnished the medical officers and two nurses. The county furnished the building which was a small modern hospital that had proved a financial failure. The clinic was conducted from November 14, 1921, to April 1, 1922. The total attendance was over 3,000 the trachoma cases nearly 300, and the operations 381, not all of the operations being on trachoma patients. At the request of the state health officer, local doctors, eye specialists, and the county commissioners who paid the bills, persons suffering from conditions other than trachoma were admitted to the clinic.

The discovery of trachoma in this region was something of a surprise to the authorities who, at the request of the state health officer, made an investigation and found conditions much like those that have long existed in eastern Kentucky and Tennessee. The origin of the disease could be traced back four generations, where it was lost. Entire families were found to be suffering from trachoma. Not a few of the infected had lost their sight entirely and even more had lost the sight of one eye.

Dr. McMullen's report is contained in the transactions of the Conference, Public Health Bulletin No. 128.

Public equipment for recreation in Detroit includes sixty tennis courts, thirty-six baseball diamonds, sixteen swimming pools, eighty playgrounds, and one Bowling-on-the-green-court.

5. A pamphlet which has been issued by the Chicago Training School of Recreation, 800 S. Halsted St., Chicago, Ill. "Hospital and Bedside Games," by Neva L. Boyd is based upon very practical activities of this sort and will furnish an abundance of material for this sort of work.

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INEXPENSIVE, COMFORTABLE, HYGIENIC and SAFE — KOTEX

Home-Making Experts Attack Problem of Cincinnati's Housing

(Continued from Page 421)

of the minimum of conveniences in homes, to help them with the economical expenditure of their budgets and with matters of cleanliness and order in the home. They teach tenants how to make inexpensive articles that add to the attractiveness of their rooms. They encourage the making of gardens, the planting of flowers and in general do what they can to add those touches that give some suggestion of real home life.

This is only one part of their work.

After having been in touch with the tenants in a house and having made a beginning in their instructive work, they go to the owner of the property, tell him what they are doing to help improve his house, how they are trying to persuade tenants to cooperate with him in keeping his building in good order, how they are trying to help tenants to regulate their budgets in such a way as to pay rent promptly. In return they ask him to make

such improvements in his house as may appear to be necessary. From time to time they encounter an owner who is absolutely unbending, who has no use for social service in any form, but thinks he knows his own business far better than we do and will give us no degree of cooperation. In such cases we have recourse to the enforcing powers of city departments. It is gratifying, however, that in nearly 75 per cent of the cases we are able to get some degree of cooperation. At times the cooperation is remarkably effective, at other times it is much less satisfactory. Likewise there are times when we encounter tenants who are so degraded because of addiction to drink or drugs, because of delinquent tendencies or because of some mental abnormality, that we can get

no cooperation from them. Rarely, however, do we fail to accomplish some results either with tenants or owners.

With a problem like overcrowding, which is so frequent now with the shortage of houses, we have found no other way as effective as the visiting housekeeper method. When we find four, five or six people to the room, as is not at all infrequent, we try to persuade them to move to larger quarters in case they are able

to find a decent place to live. We have refused help in no case where there has been any hope of our being able to provide relief.

In order to make our message more concrete the League has established in the West End colored district, where the worst housing exists, a House-keeping Center. It consists of three typical tenement rooms fitted up in the simplest possible way, neat, orderly and attractive, yet so inexpensive as to be within the means of the ordinary family. Here

in this little three-room flat we try to show mothers and girls by actual example how they can make cozy rooms in a typical tenement. During 1922 this instruction reached 823 mothers and girls and we conducted nine classes in housekeeping with a total attendance of 175.

An interesting effect on the visiting house-keeper work has been the minimizing of the bad housing conditions among the foreign-born. A

few years ago there were many cases of overcrowding and there was much bad sanitation and bad housekeeping among our foreign-born population. Due to the restrictions on immigration we have had some opportunity to catch up and have made real progress in instructing these people in American ways of living. In addition, as a preventive measure, four organizations are cooperating in meeting the immigrant families coming into this city, acquainting them with the requirements of our health regulations, helping them find suitable housing accommodations and putting them in touch with agencies that will help them to understand America and its institutions. The Travelers' Aid meets all immigrant families as they come into the city, takes their names and the



Terraced slopes showing individual effort and community pride now grace the approach to these hillside homes. This is a fine example of the growth of an idea

to afford it. When they are too poor to pay for enough rooms we try to have their income supplemented by family relief agencies. Right now, however, with the supply of tenement houses actually less than it was two or three years ago, the problem of overcrowding is becoming constantly more perplexing and our efforts will be less and less effective because of sheer lack of sufficient housing accommodations unless the pressure is relieved by the construction of homes at a very rapid rate.

The acute shortage has made it necessary for the League to permit its visiting housekeepers to devote a large part of their time to finding homes. Our offices have been besieged during the past year and a half by mothers exhausted in their ef-

Cantilever Stores

Cut this out for reference

Akron—11 Orpheum Arcade.
 Albany—Hewett's Silk Shop, 15 N. Pearl St.
 Allentown—107 Hamilton St.
 Altoona—Bendheim's, 1802 Eleventh Ave.
 Asheville—Pollock's.
 Atlanta—126 Peachtree Arcade.
 Atlantic City—293 Boardwalk (Shelburne).
 Baltimore—225 No. Charles St.
 Berkeley—The Booterie.
 Binghamton—Parlor City Shoe Co.
 Birmingham—18 North 19th St.
 Bridgeport—W. K. Mullan.
 Brooklyn—14 Fulton St. (Primrose Bldg.)
 Buffalo—641 Main St.
 Canton, O.—H. M. Horton Co.
 Cedar Rapids—The Killian Co.
 Charleston, S. C.—J. F. Condon & Sons.
 Charleston, W. Va.—John Lee Shoe Co.
 Charlotte—226 North Tryon St.
 Chicago—30 E. Randolph St. (Room 502).
 1659 Leland (near B'way).
 (Indiana)—The McAlpin Co.
 Cleveland—Granger-Powers, 1274 Euclid Ave.
 Colorado Springs—Wulff Shoe Co.
 Columbus, O.—104 E. Broad St. (at 3d).
 Dallas—Toll Bros.
 Dayton—The Rike-Kumler Co.
 Denver—224 Foster Bldg.
 Des Moines—W. L. White Shoe Co.
 Detroit—41 E. Adams Ave.
 Duluth—107 W. First St. (near 1st Ave. W.).
 Elizabeth—Gisl's, 1053 Elizabeth Ave.
 Elmira—C. W. O'Shea.
 Evanston—North Shore Bootery.
 Fort Wayne—Mathias App's Sons.
 Grand Rapids—Hempelheimer Co.
 Greenville—Pollock's.
 Hagerstown—Bible's Shoe Shop.
 Harrisburg—29 3d St. (2nd floor).
 Hartford—86 Pratt St.
 Haverhill—McGregor's, 21 Washington St.
 Holyoke—Thos. S. Childs, 275 High St.
 Houston—206 Houston Theatre Bldg.
 Huntington, W. Va.—McMahon-Diehl.
 Indianapolis—L. S. Ayres & Co.
 Kansas—Rothchild Bros.
 Jacksonville—Golden's Bootery.
 Jersey City—Bennett's, 411 Central Ave.
 Kansas City, Mo.—306 Altman Bldg.
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 Knoxville—Spence Shoe Co.
 Lancaster, Pa.—Bord's, 3 E. King St.
 Lawrence, Mass.—C. H. Woodman.
 Lexington, Ky.—Denton, Bosa, Todd Co.
 Lincoln—Mayer Bros. Co.
 Long Beach—Cal. Farm Bank Bldg.
 Los Angeles—503 New Rangers Bldg.
 Louisville—Boston Shoe Co.
 Lowell—The Lion Marche.
 Madison—Family Shoe Store.
 Memphis—28 Second St.
 Milwaukee—Brouwer Shoe Co.
 Minneapolis—Eighth St. South.
 Mt. Vernon, N. Y.—J. Rice & Co.
 Nashville—J. A. Meadows & Sons.
 Newark—301 Broad St. (2d floor).
 New Bedford—Olympic Shoe Shop.
 New Castle, Pa.—229 E. Washington St.
 New Haven—100 Canal St. (3 floor).
 New Orleans—100 Baronne St. (Room 200).
 Newport, R. I.—Sullivan's, 226 Thames St.
 New Rochelle—100 Walnut St.
 New York—14 W. 40 St. (op. Pub. Lib.).
 Norfolk—Ames & Brownley.
 Oakland—205 Broadway Bldg.
 Omaha—1708 Howard St.
 Pasadena—578 E. Colorado St.
 Paterson—10 Park Ave. (at Erie Depot).
 Peoria—Lehmann Bldg. (Room 203).
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 Providence—The Boston Store.
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 Richmond, Va.—Sermour Syle.
 Roanoke—J. Barbach Shoe Co.
 Rochester—257 Main St. (2d floor).
 Rockford—J. Stewart & Co.
 St. Louis—516 Arcade Bldg. opp. P. O.
 St. Paul—17 E. Hennepin St. (Fidelity Hotel).
 Sacramento—208 Ochsner Bldg. Kearny.
 Saginaw—Goschel-Kuiper Co.
 Salt Lake City—Walker Bros. Co.
 San Diego—The Marston Co.
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 Stratton—Lewis & Reilly.
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 Shreveport—Phelps Shoe Co.
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 South Bend—Elsworth Store.
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 Springfield, Mass.—Forbes & Wallace.
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 Tacoma—255 S. 11th St. (Fidelity Trust Bldg.).
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Except in New York City and Chicago there is only one Cantilever Store in each city. At the left is a partial list of the stores that have been selected to sell Cantilever Shoes. If none of these is convenient, write the manufacturers, Morse & Burt Company, 15 Carlton Ave., Brooklyn, N. Y. for the address of the nearest dealer and a new booklet on feet and shoes.



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highly beneficial, and experiments have shown that it also helps to produce a definite leucocytosis.

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address they are going to and submits this to the board of health. The board of health examines the family to detect any communicable disease, makes the proper recommendations and refers the card to the Better Housing League. The League makes a study of the home condition and through the visiting housekeeper gives such advice as is needed. The card is then passed on to the Americanization committee which places the immigrant in touch with ways of learning English and other things they should know to fit themselves into the city's life.

That the visiting housekeeper plan accomplishes results is shown in the accompanying illustrations. It is shown also by our records of the work done. During the year 1922, our visiting housekeepers made 8,939 visits to families and succeeded in making some improvement in house-keeping conditions in 589 families. They inspected 907 houses, made 3,227 reinspections to improve housing conditions; interviewed 1,371 owners; had 5,538 bad housing conditions remedied; had parts of houses cleaned and painted in 4,459 cases; rooms and halls papered in 788 cases. The visiting housekeepers visited and aided 107 immigrant families that came into the city during the year; and found homes for 260 families.

Plan Garden Village

The task of trying to insure that all houses in a community shall be fit places for people to live in is one of the most difficult. It runs up against economic prejudices. It is blocked at the present time by high building costs. It must grapple with the difficult job of trying to unmake mistakes of the past. Cincinnati has made some progress for which we are grateful. We still face a problem so great as to check any undue optimism.

There is one particularly bright spot in the future outlook. It is the model town of Mariemont, a great project by one of Cincinnati's public-spirited citizens, Mrs. Mary M. Emery, who has undertaken to construct a garden village on the outskirts of the city. This plan calls for the eventual development of approximately one thousand low-cost homes. They will be provided with churches, schools, library, community house, parks, playgrounds, and all things that go to make up an ideal community. It is all to be carried out along the most modern city planning lines. Those in charge of the project have studied the successes and failures of other efforts both here and abroad

and are employing the most skilled minds available to guide the project along sound lines. There is every reason to look forward to what will be one of the most satisfactory efforts along this line ever undertaken in this country. We have every confidence that it will mean a great step forward. It will set a standard which we believe will put its stamp upon all low-cost home construction in the city. We hope it may even provide some inspiration and help for other communities.

It is particularly interesting that Cincinnati should be fortunate enough to have such an ideal housing development in prospect since we happen also to have one of the most interesting and successful low-cost housing developments completed before the War. This development was undertaken by the Schmidlapp Model Homes Company under the guidance and inspiration of the late Jacob G. Schmidlapp. The development consists of small multiple family houses with about four hundred apartments renting at an average of four dollars a room per month, some increase over their original rentals, but nothing like what has taken place in most tenements. They are well planned. The rooms are of good size, they all have plenty of light and ventilation, each flat has its own bath and toilet. The houses are remarkably well maintained. It is significant that while tenement rentals in Cincinnati for even the poorest accommodations average \$5.50 a room a month, yet the Model Homes Company is renting its flats, which are incomparably better than almost anything else we have in tenements, for so much less. At the same time the company has continued to earn 5 per cent on the money invested. They have refused to increase their rentals in proportion to the rents prevailing generally. Several efforts have been made within the past year and a half to try to figure out ways by which it would be possible for them to build more homes under existing conditions. They have found it absolutely impossible, however, to build any kind of house that can be rented for the present rents in their existing houses and they have preferred not to build rather than to have to make further increases in rents.

International Mental Hygiene

From 1909 to 1918 the United States was the only country having a national organization for mental hygiene. As is stated in the *Mental Hy-*

giene Bulletin for January, 1923:

Comparatively few seem to realize that the mental-hygiene movement is now international in scope. National committees are at work in the United States, Canada, and South Africa. There are leagues for mental hygiene in France and Belgium. During the past year in Great Britain a national council for mental hygiene has been organized, and the forerunner of a national committee in Australia has taken form as a section on mental hygiene in the Australian Public Health Association. Plans for organizing a national league, or council, or committee are under way in Italy, Spain, and Brazil, and the situation is such in a number of other countries, among them Holland, Denmark, and Norway, that similar agencies can and no doubt will be established within the coming year.

Today the International Committee awaits only an appropriate occasion for its formal founding. This will doubtless be accomplished at the First International Congress on Mental Hygiene which according to present plans is to be held in the United States early in June, 1924.

Catching Colds by Hand

H. W. Hill, Director of the Institute of Public Health, London, Ontario, said in a radio talk broadcasted by the New York State Department of Health, that 90 per cent of infectious diseases are spread by the hands. To the scoffer who asks how colds are spread in this way this reply is made.

How? Well—think. You have a cold; you sneeze; to prevent your mouthspray from flying, you cover your nose and mouth with your hand; so far, so good. Then—you shake hands with your friend—and the mouthspray which you saved him from getting through the air you give him on your hand! "But it won't hurt him on his hand?" No—not while it stays there—but watch him—in a minute he has his fingers in his mouth or on his lips or he pulls out some chewing gum with his fingers or picks up his pipe by the stem and puts the stem in his mouth.

"But I don't sneeze on my bare hand—I use a handkerchief to keep my sneezes to myself!" Good—then you put your handkerchief in your pocket—presently you pull it out again; and where do your fingers go this time? Right on the very place on the handkerchief where you sneezed the first time!

New Orleans through its *Municipal Health Bulletin* credits the marked improvement in infant mortality rates in 1923 over the same period in 1922 to the improvement in the city's milk supply, the ratio in gastro intestinal disease having markedly decreased. The entire increase in these deaths, is due to respiratory disease.

Protection of the Working People of Belgium

(Continued from Page 425)

normal length of eight hours with certain limitations and compensations that are too numerous to list here.

(2) It will have been noted, in the short review of the compensation law given above that if it forces the employer to pay the treatment expenses, it in no way compels him to provide first aid to the injured. There was, it is true, a royal decree antedating the law itself, imposing a measure of this kind, but its provisions were not very practical, the conditions imposed being vaguely defined and the punishment provided depending on evidence that the lack of care resulted in bad consequences for the injured. The government thought it had to make further steps in this matter, and a complementary royal decree (Royal decree of June 17, 1921) orders measures which, in substance, are as follows:

The employer is obliged to make provision that all serious pathological cases (accident or grave indisposition) occurring at work, receive promptly adequate medical care. He must also put at the disposal of the patient a convenient temporary shelter, and have him comfortably conveyed to the nearest relief place. But the royal decree is not limited solely to this general provision; it also forces the employer to keep ready at any moment, for the use of the wounded, a minimum first aid equipment; these varying according to the importance of the factory and the special risks of the industry.

Moreover, in all cases, where more than twenty-five people are at work, a special room must be kept, exclusively for the care of the wounded. This place must be furnished according to the stipulations of the decree.

This last provision may seem rather strong and little justified by the real needs of the industry. But it has only been formulated in order to induce the manufacturers to organize suitably their methods of assistance. In fact, it is mitigated by a disposition according to which one may be exempted provided one has made sure, by a previous contract, of the assistance of a medico-surgical institute approved by the Minister of Industry and Labour and situated within the radius of twenty-five kilometers of the work place.

Of course this approval is granted only when those medical institutes present a minimum of favorable conditions. The principal conditions are: convenient medical machinery, the possession of telephone connections, and of improved means for conveying the wounded.

By these methods, the government realizes a double aim: to assure, throughout the kingdom, to all injured workers, quick and convenient medical care; and to create, by this control, an advantageous rivalry among the various hospitals.

At this moment, the results are most encouraging. More than four industrial firms have obtained exemption from the provision requiring a first aid room and 113 institutes have been approved. These figures are not final; every day the government has to examine applications for exemptions and approval.

(3) Another very important result achieved by the Belgian government since the armistice, deals with the medical control of working boys and girls between the ages of thirteen and eighteen, in all factories and workshops of the country.

The coordinated laws on public instruction and on child labor (Act of May 26, 1914) provides for the compulsory medical inspection of all pupils. The same measure will be extended to the older pupils of the second degree schools. After this step has been taken it was obviously impossible to permit the protection of the child's health and the control of his physical development to cease on leaving school, at the threshold of the workshop; just where the harmful influences may be most active and where are gathered the less favored in life. According to this point of view, a royal decree (Royal Decree of June 1, 1920) establishes a sanitary guardianship for the boys and girls at work.

Medical Examinations

According to this decree, boys and girls of sixteen to eighteen must be examined by a doctor at least once a year. Those whose state of health requires it, are examined twice a year, quarterly, or even monthly if needed.

The medical examinations are made by the medical inspector of labor himself, or, under his control, by doc-

tors chosen by the employers. Boys and girls are also authorized to go to another doctor if they choose, but in this case the examination is at their own expense. This occurs but rarely. The examinations are being conducted according to the same method throughout the whole kingdom and the medical inspectors of labor have received specific directions to give special attention to the weak and unhealthy. It can be imagined that an organization of this kind, applied to a country as essentially industrial as is Belgium, is a considerable undertaking. It can also be imagined that, after a few years of existence, it will be liable to restore the level of the working people's health and will later on influence all the future generations. It has already proved excellent, although it is clear that years will pass before it will give its maximum possible output. Here are a few figures concerning its work during the second half of 1922: nine hundred and three industrial firms have organized, at their own cost, means of sanitary protection; 523 doctors, presented by employers have been approved by the Minister of Industry and Labor; 23,481 young people (of which number 8,174 were girls) have been examined; 2.51 per cent of the boys and 3.23 per cent of the girls, every quarter; 0.26 per cent of the boys and 0.16 per cent of the girls, every month.

The medical inspectors of labor send a report to the Minister every six months, on the results accomplished by the sanitary supervisions in their district. One of those reports reads as follows:

All those who are to give their contribution to this work ought to do it with wholeheartedness and spend on it their activity and devotion with the absolute conviction that they are working for the general welfare . . . their most important mission consists in finding out the interesting cases for which prophylactic or curative medical help should be useful, in giving the necessary advice concerning moral or bodily preservation . . . and to watch as a good father, the execution of advised or prescribed measures.

This same report mentions the following facts: 49 cases of diseases of the respiratory tract have necessitated repeated examinations; also one case of circulatory disease, one case

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of gastritis, 16 cases of general weakness and one case of albuminuria. Fifteen workmen have been directed to antituberculous dispensaries. In some cases the employer has aided by continuing, for a lighter work or even for a very irregular work, the whole of the salary previously earned.

A great many of the remarks concern injuries which have not needed repeated examinations, and which it has been possible to remedy at once. Among others, we will mention those concerning polypus of the nose, adenoids or hypertrophy of tonsils, hernias and many cases of eye sores, purulent otitis, etc.

(4) Recently created institutions which will contribute strongly to the betterment of conditions of welfare and health of the Belgian workmen are the "Schools of Social Service." The first temporary school of this kind was created shortly after the armistice, under the inspiration of private contributors and with the financial help of the government. The success met by this temporary school and the results already achieved before the war, by similar schools founded by Christian democrats, induced the Belgian government to support these attempts and to give them a permanent character.

Auxiliary Workers

A Royal decree, dated October 15, 1920, provides a Board of the Schools of Social Service, whose mission consists in fixing the curriculum and controlling its practical application. Financial support for the initial cost expenses and the salary of the teachers is provided. The two years course of study results in a certificate of "Social Auxiliary."

The first year provides the general knowledge representing three hundred hours of theory, plus attendance at studying clubs and seminars as well as visits to at least fifty special organizations. The principal subjects taught are: public and administration laws, civil laws in their relation to social service, political and social economy, labor legislation, public institutions, institutions for private education and for social assistance, personal and general hygiene, care of the injured, the sick, and the children, methods of statistics, of record-keeping, etc.

During the second year, the pupils specialize in particular lines. The types of specialization adopted thus far are the following:

Child welfare work.—Staff of the institutions for education and protection of children.

Relief work.—Clerks to the charity bureaus, secretaries to organizations for private aid, social investigators, social visitors.

Institutional management.—Restaurants, canteens, etc.

Industry.—Factory superintendents, inspectors of labor.

Social insurance.—Secretaries of mutual or social insurance organizations, to intelligence-offices and insurance against enforced idleness.

Libraries.—Training of librarians.

Eight schools of this kind are now functioning, and the actual results are encouraging. To mention only the industrial group, the schools training factory superintendents, cannot meet all the applications received from the industrial organization.

Finally, among other activities of the Belgian government, we may mention the effort recently made to ameliorate the medical-pharmaceutical service of the health insurance societies. Since the war an item of more than fourteen million francs is included in the budget for this purpose.

Apart from these endeavors of the state, certain local authorities also took interesting steps. For instance, the war against the ankylostomiasis among the miners was successfully carried on by the Province of Liège, which organized, largely at its own expense, for the study and treatment of this disease. Formerly, the *Ankylostoma duodenale* infected all the mines of this province and seriously affected the health of a great many workers. Today, this nuisance is vanquished and the cure is so thorough, that sometimes it is rather difficult for the laboratories of that region to show some ankylostomes to visitors.

The province of Hainaut has also created, for the detection of the same disease, a dispensary which has proved very useful. It is true that in this mining center, the disease does not present as serious a problem as did the earlier situation at Liège.

Supporting the efforts of the officials, the manufacturers have helped greatly in perfecting the medical machinery put at the disposal of the workmen. These efforts are worth a detailed statement; we will give here some examples chosen in only one region: the establishment of J. Cockreil, Searing; the Charbonnages du Hasard; the group of coal-mines of Montegnée; the factories of Ougrée-Marihay, of the Val St. Lambert, etc. There we find surgical and medical hospitals, homes for old people, orphanages for boys and girls with schools and foundling asylums. All

these have careful medical supervision and are furnished with the most modern accessories.

But if the Belgian state and the manufacturers of this small country have realized considerable progress in prophylaxis the workpeople, on their part, have not remained backward. They also have taken bold initiatives which, we think, are liable to develop more and more. Belgium is the classic soil of "mutual insurance." The workers' societies, whose aim is to provide their members with financial help and medical assistance in case of illness, are so numerous and so common, that one cannot logically conceive the organization of health or invalid insurance without their direct assistance. The bill actually drawn, on this subject, takes this fact into account. It is true, the war, which has destroyed so many things here, seemed to drag after it the decay of a good number of our health insurance societies, but little by little they have risen again; the experience gone through resulted in improving the methods formerly followed and, today, the state of these useful institutions of human solidarity, is far better than in 1914.

The heads of our big Mutual Federations, have, during these last years, taken bold initiatives regarding dispensaries. For instance, the *Fédération des Mutualités Chrétiennes* is in possession of the Sanatorium of Mont-sur-Meuse, one of the most beautiful and best situated in the country. Also, the *Fédération des mutualités et des Unions mutualistes socialistes*, of the province of Liège has created at Seraing, a medical institution and a surgical clinic, often mentioned as a model.

Care of Mental Patients In Pennsylvania

One of the aims of the Bureau of Mental Health of the Pennsylvania Department of Public Welfare is complete state care of mental patients. With this end in view, the licenses have been withdrawn from seven county institutions, in which conditions warranted it, and the patients have been transferred to state hospitals. Another county institution, operating without a license, has been discontinued. Other aims and accomplishments of the Bureau, together with a graphic presentation of its organization, are given by its director Dr. William C. Sandy, in an article entitled "Organization and Scope of a State Bureau of Mental Health," published in the current number of *Mental Hygiene*.

Opium: An International Problem and League of Nations Control

(Continued from Page 32*)

What is a legitimate purpose in the use of these drugs, was the question which precipitated at the Second Assembly discussions that even the moderated language of diplomacy considered "as remarkable for animation as for eloquence," and that for a time seemed to threaten a rift in the harmonious lute. Special conditions still prevailing in India were the immediate grounds for the question. Throughout generations the people of India have in the absence of medical and hospital facilities turned to opium

as a familiar "home remedy," an herbal simple, as cure and as preventive, in case of disease, and a stimulant equivalent of the five o'clock tea of other countries. In the long years of habit, the people of India have learned how to use the drug without injury to themselves and there is little abuse of it. If this use cannot be recognized under the strict terms of "medical and scientific" neither does it deserve the opprobrious designation of "illegitimate." So pleaded the representative from India, supported by the British delegate according to the position taken long ago on this matter and still held by his government.

China withstood the proposed change of wording from "strictly medical and scientific" to "legitimate" until late in the meeting of the sub-committee appointed during the Assembly to consider the point, when yielding seemed preferable to seeming lack of cooperation. The circumstances as a whole, according to M. Van Swinderen's conclusion, justified the change. But Siam withstood the modification even in full assembly. It

is noteworthy that at the first meeting of the Health Committee when this request from the Opium Committee was considered, the same question arose, What is the legitimate use of these drugs? It was summarily settled there as medicinal and only medicinal, and the deliberations of the Health Committee have proceeded upon that basis. And further, according to most recent documents from the League of Nations, India is listed as one of the countries not only as signatory to the International Opium Con-

ed records of amounts manufactured, etc., will later supply data needed.

These two inquiries were, then, authorized by the Second Assembly, with the changed wording in each just mentioned and the understanding that the method would be strictly scientific and the work done through or with the consent of the governments concerned.

As to the first, the investigation by the Health Committee of the League into amounts of medicinal opium, morphin, cocain, etc., required for home consumption of different countries—a

report was presented in January to the Opium Committee from the group of four members representing the Health Committee and two representing the Opium Committee who had as a sub-committee considered the question in hand. The first point in this report has already been anticipated—that "from the health and medical point of view . . . medical use (of these drugs) should be considered the only legitimate use, all non-medical use should be considered an abuse . . . and in the opinion of



Wide World Photo.
The furnace in the basement of Headquarters Building of the New York Police Department, where the Narcotic Squad is burning something like two million dollars worth of drugs recovered from illicit drug trade during the past year.

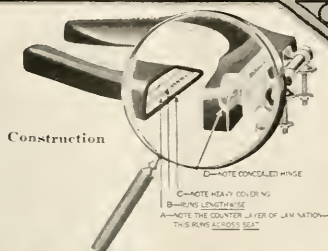
vention, but as having adopted the certificate system from January 1, 1923. This is the more interesting because excise was one of the transferred subjects and legislation dealing with it had to originate with the local governments. All of which would tend to confirm rather than confute that "general desire to reduce and restrict the production of opium" even though the interpretation of its legitimate uses may not yet be altogether unanimous. The main object is to have the information regardless of the label it bears at present; and the provisions already mentioned for detail-

doctors the use of opium as a stimulant could not be considered legitimate even in tropical countries." The Rapporteur mentioned the need for acquainting doctors generally with the less harmful drugs which might be used instead of morphin. In order to arrive at reliable statistics of legitimate needs for home consumption, the sub-committee believed that the inquiry should cover a large number of countries, through several years, and should proceed simultaneously upon four distinct lines:

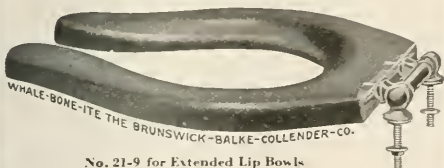
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tracting the exports; (2) direct inquiries made in hospitals, and from chemists, dispensing physicians, dentists, and veterinary surgeons; (3) statistics of disease accumulated by Insurance Funds, General Hospitals, and other sources, compared with figures of narcotics used in the hospitals; and (4) statistics obtained through the use of import and export certificates. The results of all these methods, compared and tested, would give approximately the information sought.

The second inquiry into the legitimate requirements of raw opium in each country, authorized by the Second Assembly was to some extent dependent upon the findings as to amounts of medicinal opium actually required. Pending the report on this point, the Opium Committee recommended that governments be invited to furnish their own estimate of their needs of raw opium. This plan was approved by the Third Assembly, 1922, which bettered the recommendation by urging that such estimates be furnished as promptly as possible, and indicate the method followed in reaching them; also, that a parallel statement indicate the estimated consumption per 100,000 inhabitants. These estimates have been given in sufficient numbers to justify discussion at the May meeting of the committee.

Import Certificates

An important explanation was made of this system during the year by the Secretary General to correct an impression which had deterred some States from accepting this method of control. They thought that the certificate implied a guaranty that no abuse of the drugs imported would be possible. From Sir Eric Drummond's circular letter on the subject two brief paragraphs may be taken:

If a dealer in dangerous drugs in country A desires to import a supply of drugs from country B, he must in the first place, obtain from his own government a certificate that the import of that particular consignment of the drugs is approved by the government and is required for legitimate purposes (or in the case of morphin, heroin, cocaine, or medicinal opium, that it is required solely for medicinal or scientific purposes), and must forward the certificate with or in support of his order to the exporting firm in country B. The government of country B will not issue its license for the export of the consignment of drugs to country A until the certificate has been produced to it by the supplier in country B from whom the drugs have been ordered.

Conversely, if a dealer in dangerous drugs in country A desires to export drugs to country C, the government

of country A will allow the export only on the production of a similar certificate from the government of country C that the particular consignment desired to be exported is required in country C for legitimate purposes (or for medicinal and scientific purposes as the case may be), and that its import is approved by the government of country C.

The system is based on the assumption that each country controls the export of dangerous drugs by a government license. It assures each government adopting its procedure against export from another country without regulation and against evasion of its own regulations. The success of such a system depends, of course, upon its general adoption. At January 1, 1923, thirty States had adopted the certificates, thirteen making the system effective from that date. At the end of April, 1923, the system was in force in twenty countries.

But what will happen if some countries do not adopt this system? The Third Assembly, 1922, inclined to the view that:

Governments which are parties to the International Opium Convention should be asked to agree not to issue licenses for the import of opium from any country which has not yet ratified and put into force the Convention and adopted the system (of import certificates). The Assembly considers this question important and urgent but recognizing the complicated and technical nature of the issues involved, it is of the opinion that the matter should be examined in detail by the Advisory Committee on the Traffic in Opium before any definite action is taken.

To consider this "boycott plan" a special meeting of the Committee was called in January, 1923. Thorough discussion brought out divergent opinions. Underlying the proposal is the purpose of confining the whole trade in dangerous drugs to those countries which are willing to carry out effective control of their imports and exports, and that those states which act independently of this international control will either be induced to cooperate or will cease to find a market for their supplies. Members of the committee who opposed the measure maintained that since India, Turkey, and Persia, were the principal producers of opium and since Turkey and Persia had not ratified the Opium Convention consuming countries would need to import larger quantities from India than heretofore. The result of the measure would therefore be not only to increase the production in India but also, since it was most unlikely that Persia and Turkey would reduce their cultivation, to ex-

tend the very illicit traffic the Committee desired to control. Prices would rise, and smuggling become even more attractive than at present. Perhaps even a group of states not adopting the certificates might arrange to trade among themselves in the drugs concerned. "Restriction of trade" and "coercion" were also urged against the measure.

On the other hand, it was pointed out that any increase of production could be only temporary, since supplies must decrease as control became more effective. Jugo-Slavia and Greece were also producing countries so that a monopoly for India need not be feared. Restriction of free trade is in the very nature of the convention itself and any means of tightening international control would assist in suppressing illicit traffic. At present the efforts of cooperating states were being nullified by the production and trade carried on outside the Convention—in opium, one-third of the world's supplies were controlled, two-thirds, uncontrolled—an impossible situation—and the Assembly's proposal was the only practical one yet made to meet it.

During the debate, word was received that Turkey had intimated a willingness to become a party to the Opium Convention; and also that Persia intended to submit the Convention without reservation to her Parliament. The influence of such courses upon the point at issue was evident, and decision was postponed until the May meeting of the committee.

A bit of comedy in the midst of these serious discussions was the proposal to the Committee by a certain drug firm that this firm relieve the League of Nations of many difficult problems by itself assuming control of the drug trade of the world. Consideration of the proposal was "deferred."

Closely related to the control through certificates, is, of course, the agreement to notify the League of all seizures of dangerous drugs wrongly manifested, with all possible detail of origin and persons shipping the consignments, such additional information to supplement the more formal annual reports, and make possible prompt action in suppressing illicit trade. Just how the plan works—for it is already working—may be illustrated from the case of the registered letter mentioned at the opening of this paper. Quoting from the report of this incident:

The Chinese Foreign Office has reported the smuggling of morphin into China through French and Brit-

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Burrows, in the New York Medical Record, emphasizes the post-operative, intra-abdominal use of medicinal mineral white oil, especially when such oil is of high viscosity.

He says that this oil introduced into the abdominal cavity "prevents recurrence of adhesions, lubricates the intestinal cords, straightens out angulations and kinks, floats the gas-filled loops of gut out of the pelvic cavity, exerts an intra-abdominal pressure upon the viscera, and is followed by a return of normal peristalsis."

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The viscosity of Stanolind Liquid Paraffin is 300-310 Saybolt at 37-7 degrees C (100 degrees F); specific gravity—0.891—0.895 at 15 degrees C (59 degrees F). It is a rich, heavy-bodied, mineral white oil unexcelled for post-operative use; for treatment of all cases of chronic intestinal stasis, and for all other purposes where such an agent is indicated. On account of its slow flowing quality, it produces that steadiness of lubrication which is physiologically desirable.

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ish postoffices there. The British government later reported that large shipments of morphin had arrived at Amoy concealed in registered mail forwarded through the Chinese Post Office and also through the British and French Postal Agencies, an examination of the covering letters showing that these consignments had been sent out by a firm in Denmark.

The Danish Government having instituted an inquiry at the request of the League, discovered that the firm in question had been exporting morphin and opium at the rate of three hundred kilograms per annum. The Danish government reported that it had expelled the manager of the firm, who is not of Danish birth, from the country and had advised the British government not to grant permits for the export of morphin to this firm in Denmark.

Sources for Contraband

Switzerland is on the trail of persons in that country who had been shipping great quantities of morphin, heroin, and cocaine into Canada. Spain in asking what are the sources in Lyons and in Germany for contraband seized at Barcelona. Greece is watching baggage large and small at Patras at the request of Italy because at Trieste the port police found cocaine in possession of the crew of a British steamer. Narcotics from Germany via Spain via France via St. Pierre Miquelon into Canada, are doubtless the subject of interesting communication between the representatives of these countries on the Opium Committee and their respective home governments.

But drug-takers use drugs not mentioned in the convention. This fact was emphasized by France in 1921, and a list of drugs found in France to be especially liable to abuse was furnished the Opium Committee and sent to all governments for comment. In the committee it was observed that some at least of the drugs on the French list were used as substitutes for morphin and cocaine, and were less injurious. The committee will avoid placing obstacles in the way of obtaining valuable drugs while at the same time carrying out the Assembly's instruction to extend investigations to "all dangerous drugs of whatever origin producing effects similar to those mentioned in the convention."

Several interesting matters in the committee's discussions and activity must be passed over with only mention. Their cooperation with the Transit Committee of the League in securing police measures at Free Ports for detection of smuggling; the form for annual reports accepted by the Assembly; their recommendation that prison sentences be given for

smuggling, since the game is so profitable that fines alone are insufficiently deterrent; their acceptance of the offer made by the League of Red Cross Societies to conduct an educational campaign in the eastern countries regarding the dangers of drug-taking, and their recommendation that all governments consider the advisability of public information on the danger of indulging in drugs; the assistance offered by the International Missionary Council in reports of smuggling; the important ruling by the International Postal Conference in 1920 by which transmission of the drugs mentioned in the Convention is prohibited by letter and permitted in parcels only when of declared value and to countries authorizing such importation. The Far East situation will, it is expected, be discussed again at the May meeting. Japanese traders were apparently the main agents in the contraband trade in North China; and the Japanese Government emphatically declared its intention to stop the illicit traffic, asking the cooperation to this end of all exporting countries.

Holland Steadily Active

The Netherlands government has been steadily active in the duty assigned it of endeavoring to secure ratification of the opium convention by states not yet members of the League of Nations, and of informing non-member nations of the committee's progress. "In this way governments of the Dominican Republic, Ecuador, Germany, Hungary, Mexico, and the United States have been kept informed of the various steps taken during the year," according to the report in 1922. This duty was continued at the request of the third assembly.

At the first of May, 1923, fifty-nine states had signed the International Opium Convention; forty-six had ratified it. Of the signatories, fifty-one were members of the League of Nations. Forty-two ratifications came from League members.

It may be that still the letter rather than the spirit of these laws and regulations of so new an order of things is followed by certain nations. But this possibility cannot obscure the great fact—that the unremitting activity of Secretariat and Committee, all too briefly sketched here, have laid the foundation for that effective international control of dangerous drugs which was one responsibility placed upon the League of Nations. And the response from so many states indicates a growing public opinion which will "carry on."

Relative Values of Aeration and Stirring

Air blown into the aeration chamber of an activated-sludge plant (1) maintains the sludge in suspension, (2) maintains aerobic conditions, and (3) stirs up the mixture allowing fresh liquor to come in contact with the sludge. Bushwell has attempted to determine the minimum air requirements of the microbial growths composing sludge by holding fast at least one of the factors and then balancing the other two.

Experiments were conducted in a 12 gallon tank; the first consisting in a mechanical maintenance of sludge suspension on nidus racks which were dipped in and out of the tank thus producing stirring and aeration. A second set-up was furnished with a filtrous plate and a rotating nidus rack with which good clarification and substantial purification of sewage was obtained in from 3 to 6 hours when using as low as 0.002 cu. ft. of air per gallon. Finally with gentle stirring alone it was found possible to remove from strong domestic sewage 30 to 50 per cent of the difficulty removable colloids. Stirring is apparently much more important than oxygen.

There are six reactions in the activated-sludge process: (1) the air must saturate the liquor immediately beyond the surface of contact—a rapid action, (2) this oxygen must then diffuse to the activated sludge particles—an exceedingly slow process, (3) the dissolved molecular or organic stuff must diffuse to the activated sludge particles—a slow process, (4) the colloidal particles must get to the activated sludge floc—the actual change of position of colloidal particles is practically zero, (5) the organic material and oxygen must be taken up and worked over by the organisms of the sludge floc—probably a comparatively rapid action, and (6) the by-products of the biological growth must diffuse away from the sludge floc; otherwise they will accumulate and poison it.

Of these six steps, all but (1) and (5) are comparatively slow. The only way to speed up the other four steps is by stirring. From the point of view of power output aeration is not the best way to accomplish this. The most efficient process would be one in which the air surface and flocs were held stationary while the liquor is caused to flow past them. (*Eng. News-Record*, May 10, 1923, 90, 19, p. 835.)

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Health in the West Virginia Hills

(Continued from Page 432)

wholesome, is served at 7:30 a.m., after which rooms are placed in order for the rigid daily inspection to come later. From 8:30 to 11 a.m., is given over to class room periods of one-half hour each.

The class work is devoted to stimulating and developing the latent power of these youths. They are shown that life must include these four essentials: (1) Mental effort, (2) manual skill, (3) spiritual expression, and (4) physical development. In each of the classes some phase of the intimate relation between mind and body, hand and soul is clearly and effectively demonstrated. The boys and girls are given something concrete to think about and later when they go back to their homes in Charleston or Wheeling, in Evenwood or Lewisburg, they carry with them a living knowledge of the fundamental principles of better living. This class work partakes of the nature of vocational guidance, for it produces from the hazy, blurred impressions of the complexities of life, a definite, creative, simple concept.

At 11 a.m. all the groups assemble under direction of the camp leader. Then, the clear mountain air echoes with vibrant song. No anthem was ever sweeter than these children's voices in the cathedral of the great outdoors. After a short discourse, possibly on some religious topic, the bugle sounds the mess call. Group games and recreation are in order for the afternoon. One group may play handball or baseball, while another hikes to Indian Rock or Red Sulphur several miles away. Group games are generally supervised so that the boy who is shy forgets his bashfulness and gets into the game. In the evening, after a welcome and much enjoyed supper, the big camp fire is lighted. Many stunts are presented to enthusiastic audiences, many treasures of the day's work and play are displayed. The camp fire songs rise high to heaven until the bugle call of taps ends the day.

From this brief description of the camp life in West Virginia, it will be seen that the health authorities have a definite problem before them, but more than that, they have an unexampled opportunity to do a great deal of constructive health work. Similar opportunities exist in many other

states. Even the auto tourist camp, which is sometimes looked upon as a form of pest, offers chances for health officials to spread health propaganda. The United States Army has recognized the value of the camp idea and has established a system of Red, White, and Blue Citizens' Military Training Camps. Health is stressed in these camps and one of their primary purposes is to endeavor to correct physical defects.

There is something about the two words, "going camping" which appeals to old and young alike. It arouses visions of pine woods, of glorious days of fishing and tramping, of canoe trips, swimming, and the whole wonderful life of the open air. Perhaps the most important element of all, however, is that intangible influence for better health. For many who go are needy and suppliants for increased vitality. When the embers of the camp fire die down at Jackson's Mill, an impressive stillness reigns about the circle. Standing under the starlight, with hands raised and heads bowed, all chant the Tribal Prayer of the Omahas, "Father, a needy one stands before Thee; I that sing am he."

Wa-kon-da-dhe-dhu
Wa-pa-dhin-a-ton-he
Wa-kon-da-dhe-dhu
Wa-pa-dhin-a-ton-he

New York Assembly Act No. 2392

New York state has recently passed "An Act to Amend the Public Health Law, in Relation to State Aid to Counties engaging in Public Health Work." The importance of this action is discussed in the editorial columns of this issue of THE NATION'S HEALTH. The text of the law follows:

The People of the State of New York, represented in Senate and Assembly, do enact as follows:

Section 1.—Chapter forty-nine of the laws of nineteen hundred and nine, entitled "An act in relation to public health, constituting chapter forty-five of the consolidated laws," is hereby amended by inserting therein in a new article to follow article two-a, to be article two-b, to read as follows:

Article II-B

STATE AID TO COUNTIES

Section 19.—State aid to counties engaging in public health work.

(19-a) Approval of state commissioner of health.

(19-b) Statement by clerk of board of supervisors; approval; amount of state aid; payment.

(19.) State aid to counties engaging in public health work. Whenever the board of supervisors of a county, exclusive of a county having within its boundaries a city of the first or second class, shall appropriate and expend moneys for the construction, establishment or maintenance by such county of a county, community, or other public hospital, clinic, dispensary or similar institution, or for the purpose of defraying the expenses of such county in any public enterprise or activity for the improvement of the public health, or any public health work undertaken by such county, such county shall receive state aid in the manner and subject to the conditions prescribed in this article. The legislature from time to time shall make appropriation for the purpose of rendering such state aid.

(19-a.) Approval of state commissioner of health. It shall be the duty of the state commissioner of health to formulate standards of construction, equipment, service, administration and work which must be complied with by such counties in order to be entitled to state aid, and no state aid shall be given to any county unless the state commissioner of health, after inspecting and examination by him or his representative, shall make his certificate that such construction, equipment, service, administration or work is necessary to the public health and conforms to the standards so established therefor.

(19-b.) Statement by clerk of board of supervisors; approval; amount of state aid; payment. The clerk of the board of supervisors of each such county shall, on or before the first day of January of each year, transmit to the state comptroller a statement verified by the chairman of board, certified by the clerk, which shall state the amount appropriated and expended during the preceding year by such county for a purpose specified in section nineteen of this article. On or before the first day of March next succeeding, the state commissioner of health shall transmit to the comptroller a certificate stating whether or not the amount specified in each such statement, or any part thereof, was expended by the county for a purpose mentioned in section nineteen of this article, was necessary to the public health and was conformable to the standards established by the commissioner of health. On receiving such approval of the state commissioner of health, the comptroller shall draw his warrant upon the state treasurer for fifty per centum of the amount, as approved by the state commissioner of health, appropriated and expended by each such county, and the treasurer shall pay the amount set forth in such warrant to the county treasurer of the county entitled thereto.

(2.) This act shall take effect immediately.

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Safety Museums and State Industries

(Continued from Page 497)

with October 1, a lecture service has been maintained at the museum building. On the first and third Friday evenings of each month, an address on safe practices in industry has been given by the writer. These meetings

equipment is on consignment and may be removed by the owner at will or by the museum management after a reasonable notice. The concrete value of the demonstration is that conformance to standards so visualized be-



Treatment room in Rehabilitation Clinic—Baking and Massage treatments are given in this room.

have been attended by plant engineers, works managers, foremen and others who are entrusted with supervising authority. The attendance has ranged from one hundred to two hundred and fifty persons. A new audience at each of these meetings was assured by getting the various plants in this locality on consecutive evenings to have all of their technical and supervising force visit the museum at an appointed hour.

In addition special arrangements have been made with plant managers who desire to have the museum kept open on a specified evening in the week for the benefit of their employees. At these meetings motion pictures were shown and an address given on Industrial Safety and Accident Prevention.

We feel the museum offers great opportunities to industrial leaders and executives for promoting the safety, health and efficiency of the working people in this state. Approximately one hundred seventy-five thousand dollars worth of equipment has been installed in the building. This

comes a self-imposed task rather than a burden enforced upon industry by the Department. New Jersey is thereby achieving real co-operation.



Injured workers regaining lost function by means of treatment in Rehabilitation Clinic.

Dr. H. E. Kleinschmidt to Toledo

The Public Health Federation of Toledo, needing an executive of broad training and experience to direct its work, has gained its objective by securing the services of Dr. H. E. Kleinschmidt of the American Social Hygiene Association's staff. Dr. Kleinschmidt was granted an indefinite leave of absence and assumed his new duties on May 1.

Dr. Kleinschmidt received his degree as Doctor of Medicine from Washington University in 1909, since which time he has been prominently identified with public-health progress, particularly in the field of graphic education. His work in the preparation of motion pictures, exhibits, literature, and other educational media, has brought him recognition both at home and abroad. During the war he, with many others of the Association's staff, enlisted in government service. Dr. Kleinschmidt was commissioned as an officer in the U. S. Navy, and assigned to promote and develop the social-hygiene program in the Navy, and much of the material which he designed at that time still is basic.

His activities in the social-hygiene field, first as executive secretary of Missouri Social Hygiene Society, and for the past seven years, on the staff of the American Social Hygiene Association, assure the proper emphasis on social hygiene in the program of the Public Health Federation of Toledo.

Dr. Kleinschmidt's friends and associates in the fields of public health and social welfare will wish for him every success in his new affiliation, and a feeling that this success will be achieved accompanies the wish.

New York Studies Maternal Mortality

Five successive issues of *Monthly Statistics Review* of the New York State Department of Health have been devoted to subjects related to maternal mortality. The issue of April, 1923, gives the number of deaths from each puerperal cause according to the International List with rates in proportion to deaths per ten thousand confinements. Figures are shown for 311,872 mothers who gave birth to 304,463 live children and 10,886 stillborn children; of these mothers 1,996 died from causes connected with childbirth. The percentage of error that occurs in average statistics of this kind makes the New York contribution unusually important. The matter is a large and serious problem.

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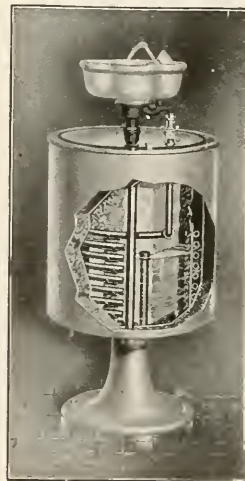
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HALSEY TAYLOR

Analysis of Reduction in Death Rate

(Continued from Page 536)

TABLE I.—THE TREND OF MORTALITY FROM CERTAIN GROUPS OF CAUSES. U. S. EXPANDING REGISTRATION AREA: 1900-1920.

Causes	1900	Death rate per 100,000 in—			
		1905	1910	1915	1920
All causes ²	1,755.0	1,602.0	1,495.8	1,355.1	1,306.0
Group I	422.8	359.8	326.0	241.7	193.9
Group II	757.4	772.1	741.0	735.6	679.1
Group III	574.5	470.2	429.0	372.6	433.0

expanding Registration Area) and summed for each of the summary rubrics. The final data are presented in Table I and are illustrated in Figure 1.

In the figure we have plotted the specific death rates for each of the three groups of causes of death against a logarithmic instead of the usual arithmetic scale of ordinates. The virtue of this procedure is that the slope of each curve to the horizontal represents the *rate* of change in the death rate and the rate of change in each curve is directly comparable with the slope (i. e. rate of change) of the other curves regardless of the size of the death rate. On such a scale a straight line represents a curve whose *rate of change* is constant.

From an examination of Table I and of Figure 1 it is clear that although the death rate from "all causes" has been declining, the rate of change in the different groups has been notably different. The decline in the death rate has been most uniform and most marked in Group I (the causes of death against which the public health program has been specifically directed); the decline has been least notable in group II (causes of death which have received little or no attention in the public health program of the first two decades of this century); and has been more irregular, though more marked in Group III than the decline in Group II and less marked than the decline in Group I.

TABLE II.—DECLINE IN MORTALITY FROM CERTAIN GROUPS OF CAUSES. U. S. EXPANDING REGISTRATION AREA: 1900-1920.

Causes	Per cent decline in death rate			
	1900-1910	1910-1920	1900-1920	
All causes ³ ...	14.8	12.7	25.6	
Group I	22.9	40.5	54.1	
Group II	2.2	8.4	10.3	
Group III	25.3	0.1	24.6	

In Table 2 we have presented some derivatives from Table 1.

It appears that the decline in the death rate from "all causes" amounted to 14.8 per cent in the ten-year period 1900 to 1910. In Group I, this decline was 22.9 per cent, in Group III 25.3 per cent and only 2.2 per cent in Group II. In the decade 1910-1920, the corresponding percentage declines were: "all causes," 12.7; Group I, 40.5; Group II, 8.4; and Group III, 0.1. For the whole period, 1900-1920, the decline in Group III was approximately the same (24.6 per cent) as for "all causes" (25.6 per cent), and the decline for Group I was more than twice as great (54.1 per cent) and for Group II less than half as great (10.3 per cent) as for "all causes."

We are well aware of the shortcomings and inaccuracies inherent in mortality data which, in an ultimate analysis, are based upon the statement of "cause of death" upon death certificates. Nevertheless it appears to us from the tabulations presented in this note that the decline in the death rate during the twenty years 1900-1920, when analyzed according to the method used here, is wholly reassuring to the public health worker and indicates that his efforts have not been in vain. Our conclusion, it is recognized, is wholly *post hoc ergo propter hoc*. And though there has been a general decline in mortality from all causes of death it is exceedingly unlikely that at least a very substantial portion of the greater decline in Group I can be attributed to any factors which are not part of the public health program. It appears to us to be outside the domain of probability that those causes of death which have been the declared objects of the public health program for the control of morbidity and mortality should happen to be the ones which would show

consistently greater declines than the average. Indeed, it appears to us that the differential analysis of mortality which we have attempted here indicates clearly that twenty years of public health activity has yielded clear-cut and substantial reductions in mortality.

Refugees' Diet Contains Ration of Yeast

To rear children with nutritional aid from yeast is the aim of an interesting experiment being tried in Near East Relief orphanages at Athens, says the *New York Times*. A thousand subnormal children suffering from hardships in the exodus from Anatolia, will be selected for supplementary feeding with vitamins, in order to demonstrate how far these so-called accessory food products can combat and repair the results of prolonged malnutrition.

Recognition of the permanent benefit to Greece resulting from the American Red Cross sanitation program among the million refugees from Asia Minor and Thrace who are now in Greece has been shown by the Revolutionary Committee now controlling the country. Colonel N. Plastiras, chief of the committee, has issued an order directing all prefects, Military Governors and police directors of the nation to give full cooperation in carrying out American Red Cross measures, and calling upon every Greek citizen to do the same as a matter of duty.

Dayton Provides Care for Its Babies

Despite the fact that the weather ran from "showers" to "blizzard" on four out of the six days of the annual baby conference conducted by the Division of Health and Visiting Nurses Association of Dayton, Ohio, from May 6 to 12, 967 babies were examined. The greatest number examined on any one day was 360. The rapidly declining death rate which was lowered to 67.5 in 1922 was reflected in the improved general appearance of the babies. This is becoming more evident with each recurrence of the annual baby week states the *Bulletin* of the Division of Health. "During this conference as well as in the weekly clinics it is unusual to see puny, scrawny babies. A few years ago such sights were common in the yearly conference and were the rule rather than the exception in the clinics."



Treating Abscesses in Antrum and Sinus Regions

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Safety Pays for Itself

(Continued from Page 441)

ducted which was attended by approximately twelve hundred superintendents, foremen, and gang leaders from their plant and other plants in the district. The management were so pleased with the success of their venture that they asked that a course be planned for the workmen. The committee which had conducted the foreman's course after careful deliberation and planning decided to conduct not a lecture course, but a system of playlets or sketches demonstrating dangerous practices which result in injury. Eight of these sketches were shown, each by a different department. The result of these meetings was remarkable. For the five years previous to the meetings the plant had had an average of five hundred seventy-eight lost time cases per year. The year after the meetings the plant had only thirty-five lost time accidents or about one-sixteenth of the average for the previous five years. The hospital bill for the year preceeding the meeting was nine thousand dollars. For the year succeeding the meetings it was six thousand dollars.

There is an intangible benefit secured by an industry engaging in safety work that cannot be shown in percentages of accident reduction or in the saving of money. When foremen and workmen come together in safety meetings, large or small, they go back to their work broader and better men because they have met together and discussed problems common to all. American industry tends more and more to specialization which means monotony and narrowness of outlook. By interesting the foremen and workmen in safety it lifts the individual out of the rut and broadens his vision. Another intangible benefit of safety in the association of superintendents, foremen, and workmen in safety committee meetings in the plants. I have seen the foremen and men from various departments in safety committee meetings in groups of from five to fifty. The discussion has been frank and free. All the cards were laid on the table. If a recommendation proposed by a workman were not feasible, he was told so and the reason why was explained. Not only is safety discussed, but also sanitation, welfare, and kindred topics. These meetings cannot be surpassed for the promotion of good fellowship and cordial relations between superintendents, foremen and men.

Maximum production, which means dividends to the stockholders and a full pay envelope to the workmen cannot be accomplished with buildings and equipment where no regard is paid to safety, sanitation, and pleasant working conditions, but with due regard for these, production will reach its greatest efficiency.

The Use of Morbidity Studies Among Miners

Mine operators and managers for a number of years have known that the maintenance of health among the workers has an appreciable financial value, says Chief Surgeon R. R. Sayers of the Bureau of Mines, in a report of the Subcommittee on Prevention of Illness of the American Institute of Mining and Metallurgical Engineers, presented at the New York Meeting, February 19-22, 1923 (Serial No. 2453, U. S. Bureau of Mines).

Mortality statistics are probably the most easily available indices as to the hazards of industry. However, both field and laboratory studies are limited in value in that such studies usually have been made over a comparatively short period. While we have some information as to their immediate effect, we do not know to what extent extreme heat, humidity, the presence of dust or other health hazards are the cause of disability.

While the data obtained from morbidity statistics out of material aid in the prevention of sickness, they only show the last illness and give no information as to previous health conditions of the individuals. Furthermore, no information is given as to the exact nature of their work other than a very general statement as to occupation. It is this limitation of the knowledge supplied by death certificates that makes sickness records so necessary to lessen or eliminate the health hazards of an industry.

One lead smelter in the United States has a full-time medical and safety organization which makes physical examinations of all applicants for employment and at intervals thereafter. Sickness records are kept of all illness. This company decreased the yearly incidence of lead poisoning from eighty-seven cases to thirty-five cases in four years. However, they had not compiled and an-

alyzed their records during the period, but on doing so found that the decrease in the number of cases was chiefly among those occurring about the blast furnace. At this point the number of cases was decreased from forty-seven occurring during a year to five cases during a like period. The analysis of the records further showed that there had been but little or no decrease in the number of cases occurring about the preheaters and charge floor—twenty-four cases as compared with twenty-two cases per year at the end of the period. A physical examination of each of the employees in the above departments was made at once by the plant physician and over 60 per cent of the total number were found to be leaded. The conditions in the three departments were investigated and practical means taken to eliminate the hazard.

Usually there is no valid reason why companies having a full-time plant or mine physician can not record what is happening to the health of the population in which they are interested. Records of sickness, of course, are kept in practically all establishments which provide medical service for employees, but usually they cover only those cases that are treated in the plant dispensary or company hospital. Obviously, a record of all the cases occurring in the population under study is necessary for determining the relative frequency and severity of disease according to occupation. It is also necessary to have available the same set of facts for the persons not sick as for the persons sick so that comparisons can be made in terms of rates per 100 or 1,000 persons in any given period. A card 5x8 (inches), used by the U. S. Public Health Service and several large industrial plants, is suggested as being suitable. Reprint 573, Public Health Reports, gives an explanation of the terms used on this card.

Anti-Hookworm Campaign in Honduras

The anti-hookworm campaign in Honduras, begun in June, 1922, has included 20,031 examinations and given 12,245 treatments for intestinal parasites. Branch clinics have been established in several provinces, carried on with full cooperation between the local and national governments.

Cleveland reports that its garbage reduction plant has been self-sustaining for all but two years and shows a profit from its by-products.

The NATION'S HEALTH

A Monthly Magazine Devoted to Community Health with
Special Reference to Industrial and Institutional Problems

Volume V

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Number 8

N.H.

Home Nursing Care of Infantile Paralysis Cripples

Stories From the Day's Work of the Committee for the Aftercare and Study of Infantile Paralysis of the Visiting Nurse Association of Chicago

By EDNA L. FOLEY, SUPERINTENDENT, VISITING NURSE ASSOCIATION, CHICAGO.

EVERYONE knows something about infantile paralysis—the epidemic poliomyelitis since the epidemic of 1916, when there were 27,000 cases reported in the United States alone; but, until recently, little has been said about the value of home-nursing care after the acute stages have passed; indeed, far too little emphasis has been put upon muscle training and the prevention of deformities by means of the correct posture of the affected parts—joints, back, arms, legs, et cetera.

Of the thousand or more patients who have passed through the hands of the visiting nurse since the big epidemic, a few illustrations will suffice to show what this new treatment can accomplish. Just six years ago the author saw a five-year-old victim of the epidemic of 1916, crowded into a baby-carriage far too small for her. Leg, arm, back, and abdominal muscles had been left so weakened that she could not stand, or even feed

herself. The spine showed a marked functional curvature and the legs obliged to assume in the carriage.

Field of Muscle Training Widens

NOT EVERY nurse can render adequate after-care for the paralytic cripple. Stiff preparatory training, directed sympathy, and the utmost patience are required; but the selected groups who have submitted themselves to the essential discipline have found this special field a laboratory out of which has evolved a new technic of the widest application. The mastery of dysfunction through voluntary effort to perform the motions and exercises worked out in accordance to the needs of the part affected has made a place for muscle training in any scheme of corrective gymnastics for sick and convalescent patients that has received too little emphasis in public health nursing.

There was some power in the left hand and forearm for, when the busy mother had time to pinch a pencil between the right thumb and forefinger and to place the left hand on the right wrist, Katie could painfully draw scrawls on a bit of cardboard until the pencil tumbled over.

Katie was the youngest of seven. Her father was a bad provider and her mother was a laundress. Their basement reeked with all the odors that usually accompany the squalor implied by the above conditions. So seriously paralyzed a child would have seemed an institutional patient but both Katie and her mother had seen enough of hospitals during the five dreary weeks of quarantine. Even the plaster shells applied to keep the legs straight, had been stripped off as soon as the child reached home, in order that she might be more easily tucked

were quite helpless and deformed, both as a result of the paralysis and as the child reached home, in order that she might be more easily tucked

into the old baby-carriage that never was far from her mother's side.

After a thorough dispensary examination, the treatment advised here was rest, correct position in bed (preferably on a Bradford frame), plaster shells for the legs, a platform splint for the right arm, a daily salt tub-bath followed by a very gentle massage and later, ever-so-carefully graded muscle exercises for legs, arms, back and abdomen, plus a weekly visit to the orthopedic clinic. The muscle examinations showed a trace of muscle power in nearly all of the affected muscle groups but the deformities caused by the action of the unparalyzed, opposing groups made any sort of success through care in such a home, most unlikely. The mother was plainly not interested; the father, openly antagonistic. In fact, the family has moved many times in order to escape this unwelcome supervision. It has kept the truant officer busy, for today Katie goes to school. To be sure, she wears a removable plaster corset and uses crutches, for the abdominal muscles are very weak, but her leg braces have been discarded, both forearms are normal, her left shoulder muscles are returning gradually and only the right deltoid is giving a lot of trouble.

This result has cost more than four hundred home-treatment calls, varying in length from fifteen minutes to an hour and a half; about seventy visits to the clinic, at first in a taxicab but now by streetcar; many hours of plasterwork brace-fittings, and examinations on the part of a keenly interested surgeon; bribes of dolls in pink dresses; loans of Bradford frames and a wheel chair; gifts of several plaster jackets and removable spicas, of two braces and several pairs of shoes. A lot of time and money, perhaps, to put on a stupid little child of ignorant, illiterate parents, but the investment was not in vain, for Katie has inherited some of her father's pugnacity and

when the clinic, the nurse and the school get through with her, she will be a self-supporting, vocationally-educated young woman, not a helpless liability, spending weary years in the alms house or equally dull ones selling matches on street corners. And to doctor, nurse and teacher alike, Katie and her affairs have been a liberal education, for in this one home we have seen illustrated all angles of the poliomyelitis problem: the need for better early hospital care, for more prompt follow-up and home supervision, for adequate clinic and

et cetera—and the careful exercises and close supervision have brought about this marked physical improvement without any surgical interference. Katie demonstrates what can be done in spite of a variety of conflicting circumstances. If we could have commanded adequate convalescent home facilities and intelligent, sympathetic help from either or both of her parents, we might have been able to accomplish a great deal more for her.

Although it has been estimated that 80 per cent of poliomyelitis patients

are less than five years old, recorded ages have ranged from eight months to nearly fifty years. One patient in particular was a young school teacher only twenty-six years old, who was apparently hopelessly deformed and paralyzed from the flexed thighs, which drew up her knees, to the badly twisted feet. Stricken in the height of her usefulness, she came to us from a relative's home, where for two years she had been a helpless dependent, tied to her bed or a chair—a hideous existence for a proud-spirited young woman whose only misfortune was her poverty. Through summer residents who had heard of our work, she was brought to Chicago, given a free bed in a good hospital, an operation was performed by a member of the orthopedic staff and six weeks later she was fitted with leg braces and given crutches. Of course she was still per-



These three children were apparently hopelessly crippled when their case was undertaken in 1917. To the girl now able to hold the dumbbell, such effort was then impossible. The one at the left is learning to balance, and the one in the middle has so far advanced that it is hoped she can one day walk without crutches. All are now in school.

home-nursing service, and for a special school that will adapt its system to the needs of the handicapped child. For Katie has been a medical, orthopedic, nursing, social and economic problem all these years and through her, we have learned what not to do for many scores of similar cases. Two things Katie has never been: a relief or a surgical problem. In spite of its poverty, the family has never asked any aid other than that made necessary by the child's condition—casts, braces, dispensary care,

perfectly helpless, but straight. Then began months of nurse-training. She was given daily exercises to coax back any latent action and to strengthen and re-educate the felt powers in the affected muscle-groups. Gradually she was taught balances and the use of crutches. She was under treatment nearly nine months; then a sister came down for a week to learn the most obvious exercises and the patient returned to her home village. To make a long story short, a recent letter said that she was doing all of the

housework, even the floor-scrubbing, in a three-room apartment, tutoring two hours and doing eight hours of office work daily, had made a new organdie dress and gone to a garden-party—not a bad showing for treatment covering less than three years. This patient is wholly self-supporting; she was both physically and economically dependent when first referred to us. She will always need braces and crutches, walking will never be easy; but she is independent and on her own.

These two stories describe different but difficult patients and I could tell of many more like them. At present the Committee for the Aftercare and Study of Infantile Paralysis of the Visiting Nurse Association of Chicago has nearly eight hundred handicapped patients under its supervision. At least six hundred of these are receiving fairly regular home or school treatments at the hands of fourteen especially equipped visiting nurses. Our experience has taught us that this sort of work does best under the supervision of a special committee, the personnel of which is made up of well known, interested physicians and orthopedic surgeons and lay people equally active in the proper care and education of crippled patients.

In organizing, the committee selected three clinics that were fairly convenient, geographically, for most of our patients. Since then we have added two others. All of our free cases are sent to the nearest one of these five clinics and nearly all of our free home work is done for clinic patients. In only a few instances are we carrying patients who are not under the direct supervision of orthopedists and about 80 per cent of our children are clinic patients. Every patient receiving home treatment is under medical supervision. A surgeon from each clinic, two physicians, who, in 1916, represented the only hospitals admitting acute poliomyelitis cases, and Dr. Frank Billings, long a member of the advisory committee of the Visiting Nurse Association, constituted our first medical subcommittee. The other members of the original committee were selected

from the board of directors of the Association. At first a special fund was raised to pay for equipment, transportation, and the salaries and expenses of the nurses, and instructor. Later on we were given a Ford sedan. Then the expenses of the nursing staff, including salaries, were taken from the annual budget of the Association and now our special fund is needed only for equipment, braces, crutches, etc., and the chauffeur's salary.

Before our first survey of the 1916 cases was completed, we began to look for ways and means of giving the home treatment. We tried to put the children into the general district work but the nurses knew very little about the prevention of deformities, correct position, muscle examinations and

all of the more important muscles. The weak muscles are hindered by the strength of their opposing groups, therefore all muscles must be studied, not merely the affected ones.

Too much emphasis cannot be laid upon this need of a very thorough and stiff training in anatomy for any workers who are going to give the actual muscle training treatments in infantile aftercare work. A superficial knowledge helps just as knowledge of correct and faulty posture helps but if the home treatments are going to be given regularly and faithfully, so that weakened muscles may be spared over exertion and coaxed back to a semblance of their former strength, an accurate knowledge of the entire muscle system must be in the possession of the workers making the examination and planning the exercises. Mothers and helpers may be taught to give the treatments under supervision, but the exercises must be worked out by experts.

A bed-ridden or wheel-chair cripple is something of a burden to himself and his friends. If he can be taught to sit down, to walk on a level, and to go up and down stairs, he is pretty nearly independent; consequently, from the first we have tried to stress the kind of treatment that would make these three things possible.

From the beginning we found that infantile

paralysis, although an acute infection, affects nearly every patient differently. The exquisite tenderness and soreness that make the acute stages of the disease so difficult to handle, will persist in some cases for weeks and nothing except warm tubs can be attempted until this soreness is past. In other cases the soreness wears off much more quickly and treatment can be instituted earlier. It is generally admitted now that patients in the acute stages should be under the observation of orthopedic surgeons from the onset of the disease in order that deformities, especially of ankles, knees, hips, and shoulders, may be prevented. The position in which the patient lies—(Continued on Page 567)



One such child as this constitutes one of the most complicated problems we have in medical, orthopedic, nursing, social and economic service. The care involved is a liberal education for all concerned in her re-education.

muscle exercises. Most nurses think that they learn anatomy while in the hospital. They merely learn to pass examinations; they actually know very little about muscles and nerves and bones and tendons. In our first year, we were fortunate in securing an instructor who was not only a graduate of the New Haven Normal School of Gymnastics but who also had had training and practice with Dr. Robert Lovett of Boston. This allowed us to organize good class-work. The nurses from the first were given a very great deal of anatomy for it is impossible to make a careful muscle examination and to work out the needed exercises for any patient unless one has an accurate knowledge of the origin and insertion and action of

Medical Observations Made on the Zuñi Indians

Being a Resumé of Medical Observations Made During the Hendricks-Hodge Expedition to Hawikuh

By HENRY CRAIG FLEMING, M.D., NEW YORK CITY.

PURSUANT to the desire of the director and of one of the trustees of the Museum of the American Indian, Heye Foundation, that medical observations be made on the Zuñi Indians, the writer was enabled to conduct the investigation whose results are incorporated in this paper, during the archeological researches by the Hendricks-Hodge expedition of the Museum at the ruins of Hawikuh, in August, 1921.

The Zuñi reservation is situated in western central New Mexico, extending to within about eight miles of the eastern boundary of Arizona, and covers an area of 288,040 acres. The average altitude of the valleys is approximately sixty-five hundred feet above sea level. Most of the surface consists of flat, rolling, and rugged country covered generally with sagebrush, cacti, and other lesser growths, together with some juniper and piñon trees. An occasional oasis, spring, or shallow stream, together with a capacious reservoir fed by the waters of the Zuñi river, makes a limited agriculture possible. Frequent rains occur during a portion of the day in the summer season, but the moisture is so soon dissipated by the dry sand and soil, and the hot sun, that both man and beast encounter obstacles to their existence during a large part of the year.

The population of the reservation was 1,863 according to an official statement by the Commission of Indian Affairs in 1921, of whom there were 1,063 adults, 800 minors; 1,040 males, and 823 females.

The Zuñi Indians are distinctly pueblo dwellers, living in stone and adobe houses of one or more stories, of which most contain two or three

communicating rooms, with few small windows situated high above the earthen floor, usually kept tightly closed and thus affording little or no ventilation. Entrance is by way of a

and the trading post or general merchandise store, and there reside the reservation physician, a missionary, and several white settlers connected with the local day school and with the trading post.

The Indian agent, who administers all Federal business relative to the inhabitants, lives at Black-rock, about four miles east of Zuñi, and here are situated also the Government school, and the irrigation reservoir above referred to.

As the masses of the Indians are entirely ignorant of even the simplest laws of hygiene, it is obvious that sanitary conditions are most primitive. Human excrement is frequently deposited in the open, close to the houses in which swarms of flies "blow" the jerked mutton which is commonly hung upon strings or poles to dry for winter use.

Superstition and ignorance cost the population many lives annually through pernicious practice of the medicine men and women. And it is unfortunately true that but little or no medical intelligence and efficiency are evident.

The plan of study for making these observations was that of procuring Indians at random, of both

sexes and of various ages, for general physical examination, including Wassermann analyses and blood smears and counts, inspection of the pueblo, general living conditions and customs, and such history taking, by the aid of an interpreter, as might lend constructive support.

At the beginning the writer was advised that difficulty would be encountered in procuring subjects for study owing to the Indians' shyness, superstition, and even resentment of the proposed study. Such, however, did not develop to be the case, for not

Here Age Does Not Mean Uselessness

THE careful blood pressure readings made revealed much lower averages than exist among white peoples. Many men approximating seventy years of age, in extremely active pursuits, registered systolic pressures between 110 and 125, and diastolic pressures between 60 and 75.

Fischer, whose long-lived group exhibited the common characteristic of low blood pressure readings, would find in the constitutionally low pressures of the Zuñi men an explanation of their longevity.

He would, however, willingly concede that zest for life in the aged men of these pueblos is due in part to the fact that with them age does not mean an easy life of self-indulgence or involuntary retirement from competition with their kind. The joy of the race is theirs until the journey is done.

rather narrow doorway, while ascent to the roofs, to which the Indians frequently resort, as well as to the upper stories, is possible by external ladders.

The principal pueblo or village upon the reservation is Zuñi, or Shinakwin, situated on the Zuñi river at an altitude of 6,282 feet. Three less important ones are Nutria, Pescado, and Ojo Caliente. These smaller pueblos are occupied chiefly during the farming season and are in close proximity to large springs which irrigate the surrounding valleys. In Zuñi itself are situated the postoffice

only did we not experience a single exception to our wishes, but on the contrary many Indians, entirely unsolicited, volunteered for such studies as we desired to make.

From the standpoint of stature and skeletal development nothing unusual was observed. The Zuñi men range in height from five feet six to five feet ten, with perhaps the majority between five seven and five nine. Most of the women are from two to five inches shorter. The muscles are not large, but are extremely resilient and often very powerful, thus affording great agility and marvelous endurance. The bodies of the younger men are unusually well framed but slender, with readily visible ribs and relatively prominent joints. The feet and legs are well developed, although the muscles are not nearly so large as one would expect to find in a people who run so much as the Zuñis do. There is a striking contrast between them and the jirrickisha men of Japan and China.

It is a common sight to see one or more of these Indians while going from one pueblo to another, a distance of fifteen or more miles, run the entire distance without stopping to rest. And a favorite pastime is their national game of *ti-kawa-we*, or the race of the kicked stick. This is played by two competing teams usually of four or more runners each. Two cylindrical sticks are cut, one for each team. They are about five inches in length by about half an inch or less in diameter, and are differentiated by distinguishing red paint marks.

The race is run upon the open prairie over a prescribed course which usually extends from fifteen to twenty miles. Both teams start at the same line, at a given signal, and run the entire distance without abatement, kicking the sticks as they go, but at no time being permitted to touch them with their hands. Even in the event of its falling into a cactus clump or into a prairie-dog hole, the stick must be recovered and further propelled by the foot only, under penalty of disqualification should it be dislodged in any other way. So imbued is the Zuñi with the idea that the stick helps him, instead of himself being the sole motive power of the stick, that he will frankly state that without the

stick he could not possibly cover so great a distance in so short a period. It is, therefore, a common practice when traveling considerable distances on foot for these men to kick a stick before them.

Examination of eight of these runners immediately after the finish of a stick race, at which time they were bathed in profuse perspiration, revealed comparatively no evidence of fatigue, no respiratory distress, and no heart rate above 106 beats per minute.



The Zuñi men range in height from five feet six to five feet ten. The bodies of the younger men are unusually well framed, but slender. The muscles are not large, but extremely resilient. The Indian shown is balancing on the foot the painted stick used in the national game of *ti-kawa-we*.

Blood pressure determinations by the acoustic method, the diastolic being read at the fifth phase or point at which the pulse sounds disappeared, of approximately one hundred fifty adults, revealed much lower averages than are found among white people. Of sixty-five cases ranging in age from 50 to 70 years, of which sixteen were women, the systolic pressure ranged from 120 to 130, with diastolic pressure from 58 to 85. The average range of pressure in seventy-four cases between the ages of 25 and 50, was systolic 110 to 125, and diastolic 60 to 75, with no appreciable elevation of either pressure in the older cases of this series. In no instance of the cases examined did a systolic pres-

sure exceed 145 or a diastolic exceed 85, unless there were perfectly definite subjective distress and objective evidence of cardiovascular or renal disturbance.

The writer was surprised to find many men of approximately seventy years of age leading lives of extreme physical activity, performing feats requiring great endurance, and registering systolic blood pressure between 110 and 125 and diastolic pressure between 60 and 75. In one instance, that of Gaialito said to be 75 years of age, an old warrior, the systolic pressure was 110 and the diastolic 80. This man revealed a definite *arcus senilis*; as was true of many others, a slight impurity of the first sound at the cardiac apex, and suffered marked impairment of vision from trachoma, but otherwise was presumably well and not only performed hard manual labor daily, such as digging, but also entered competitive games, such as tug-of-war, with considerable success against younger competitors.

In one instance, a man said to be fifty-five years of age, apparently in normal health, the systolic blood pressure was 100, diastolic 75. In another case, a man of fifty, apparently well, registered systolic 105, diastolic 60. A few cases revealed systolic pressures between 150 and 220, with corresponding elevation of the diastolic pressure, but in each of these cases there was evidence of disease to account for the hypertension.

Altitude unquestionably exerts some influence upon blood pressure, and the study of this has been approached in two ways:

- (1) By a study of the pressure of people living at various altitudes.
- (2) By the use of the pneumatic chamber to change the atmospheric pressure.

The approximate relation of atmospheric pressure to altitude is illustrated in the following table from Casmus:

Atmospheric pressure Mm. Hg.	Altitude Meters	Altitude Feet
760	0	0
750	1,148	3,760
660	2,370	7,760
460	4,022	13,200
350	5,945	19,470
260	8,600	28,180
200	11,000	36,040

It has been demonstrated by Schneider and Hedblom⁴ that in pass-

ing from 1,700 to 1,600 feet falls of relative pressure of from three to seven mm. Hg. occurred without changes in the average diastolic. In ascending from six thousand to 14,109 feet, they found an average fall of both systolic and diastolic pressures of seven mm. Hg. and an average rise of pulse rate of 26 beats per minute.

Clough² detected no significant variation in the average blood pressure of individuals living at an altitude of 5,000 feet and those at sea level. Studies by Gardiner and Hoagland³ corroborate in large measure the findings of Clough. They studied individuals living for a year at an altitude of six thousand feet and found their relative pressures only slightly lower than those observed in persons of the same age and sea level. Smith⁴ believes that an altitude of 6,230 feet does not produce any consistent alteration of blood pressure in either normal or tuberculous individuals.

It seems logical to conclude from numerous studies made that although ascension tends to lower blood pressure, the degree of lowering is insignificant in the average individual, although the exception is occasionally witnessed in hypotensive individuals. When appreciable lowering of pressure does occur it is more pronounced in the systolic pressure.

The writer finds no record of studies of blood pressure having been made upon Indians living at various altitudes or of Indians passing from one altitude to another, but he finds no reason for attributing the remarkably low pressure of the Zuñi to the altitude at which they live.

It is well known that hypotension may occur following hemorrhage, in acute infection and in chronic conditions of malnutrition or cachexia, in amyloid disease and in cyclic and or-

chostatic albuminuria, in anaphylaxis, nicotism, alcoholism, in endocrine abnormalities and in other pathological states. Facilities for excluding certain possible contributing factors to



Gaialite, an old warrior, said to be more than seventy-five years of age, performs hard manual labor daily and has considerable success in competitive games—such as tug-of-war—against younger men.

the low pressure of the Zuñis were not available on the reservation where these studies were made, but the writer believes their hypotension to be constitutional. If this conclusion be correct, it is interesting to note the paradox of the Indians' great powers of endurance and stamina as contrasted with the average white man's deficit of these qualities if he be the subject of low blood pressure.

Inaccuracy regarding the ages of the cases was inevitable because these Indians do not keep record of the date of birth, and it therefore becomes a matter of conjecture, usually deduced by determining how large a boy or a girl the subject was at the time some well known event occurred in their lives.

One hundred twenty-five differential blood counts were made upon apparently normal men and women of the aforesaid series without detection of abnormality of the white or red cells or abnormal variation of their numerical relationship.

Seventy-nine specimens of blood for Wassermann analyses were procured from men, women, and children, carefully packed on ice and delivered within forty-eight hours at the laboratory of the Albuquerque Sanatorium. In this series the following results were recorded: Five positive; sixty-seven negative; and seven anticomplementary.

Contrary to the prevailing lay belief that the Indian in general is destined to die of tuberculosis, the writer found evidence of this disease in but seven of about two hundred and fifty cases examined. These examinations, however, consisted of physical methods only, for laboratory and x-ray facilities were not available. In the seven cases presenting definite signs of lung disease, four were third stage cases and confined by their disease. For the greater part the men, women, and children, although in many instances thin, even emaciated, from lack of proper food, presented well developed resonant chests with normal respiratory sounds.

Evidence of syphilis too, was very uncommon, as illustrated by lack of physical evidence and negative Wassermann findings.

The one most serious disease prevailing amongst the Zuñis is trachoma. This disease is rampant, almost universally prevalent among them, and seriously imperils their vision. The writer saw many cases in which large, hard masses had formed upon the conjunctiva by coalescence of the primarily discrete granules, thus creating ulceration, opacity, and in several instances complete destruction of the cornea with resulting blindness. The—(Continued on Page 550)

1. Schneider and Hedblom: *American Journal of Physiology*, 1908-9, xxiii.
2. Clough: *Arch. Int. Med.*, 1913, xi, 590.
3. Gardner and Hoagland: *Trans. Amer. Climat. Assn.*, 1905.
4. Smith: *Jour. A. M. A.*, 1915, lxiv.



The race of the kicked stick, covering a course of fifteen or more miles, is played by two competing teams of four or more runners each. Needless to say, foot troubles do not exist among them.

Vitamin B as a Factor in Nutrition*

Whether Its Merit Lies in Its Food Value or in Its Stimulus to Food Utilization, Vitamin B Is a Dietary Essential

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VITAMIN B was the original dietary essential to which the term vitamin was applied.

As has been the case with many interesting discoveries in physiology, interest in the group of phenomena suggested by the word vitamin really began with observations made of a pathological condition; in this case the observations were made on human beings suffering from the disease beriberi, which is of widespread occurrence among the peoples of the Far East whose most common staple food is polished rice. This interesting disease is characterized by a paralysis involving chiefly the limbs together with certain alimentary and cardiac symptoms.

In 1890, Eijkman,¹ a Dutch physician on the Island of Java, reported observations made on his barn yard fowls; symptoms in these birds similar to those characteristics of human beriberi were described by him, together with experiments which he made to determine the cause of the malady. Later it was suggested that this disease was caused by the absence of some necessary substance from the food; this suggestion, however, did not meet with ready acceptance. There were some who believed that beriberi was caused by pathogenic organisms present in moldy rice. The usual tests by which such organisms are identified and shown to bear causal relationship to disease were made and negative results always obtained in the case of beriberi. It was suggested by other students of this problem that a toxin was present in the rice but experiments designed to test this hypothesis always yielded negative results. Some investigators

made serological and immunological studies of beriberi and likewise failed to secure any indications of the presence of antibodies or similar biological products in the body fluids of patients suffering from this disease. The complete failure to secure positive findings supporting any of the various seemingly more acceptable hypothesis advanced to explain the origin

sciences of bacteriology and immunology were making remarkable discoveries regarding the causation of disease. It is not to be wondered at, therefore, that the acceptance by medical authorities of the deficiency disease idea has occurred only comparatively recently.

The crucial test of the vitamin hypothesis has rested on these facts:

- (1) that the pathological condition in question only occurs when the individual—man or animal—has subsisted for a considerable period on a deficient diet;
- (2) that the abnormal condition is cured by the administration of a sufficient amount of some source of the appropriate vitamin, and
- (3) that when the organism is fed the deficient diet together with a daily small but adequate amount of a source of the vitamin, the pathological condition does not develop.

Such facts as these involving vitamin B have been obtained from feeding experiments performed on man and animals. In the light of what is now known regarding vitamin B, a satisfactory explanation can readily be given for the fact that beriberi, which had been such a scourge in the Japanese navy, was caused to disappear almost entirely by changing the ration offered to the sailors.

It is quite obvious that advance in the study of vitamin B can only be slow if students of this problem are to wait for cases of beriberi to appear before observations and definite experiments can be made. As a matter of fact the greatest progress along this line has been made by investigators working in a different field of study.

Ever since it appeared that the various foodstuffs—namely, protein, carbohydrate, and fat—seem to subserve different functions in the living organism, physiologists have had as

Food Interest and Food Relationships

TO THE average person vitamin is a word to conjure with, so impressed is he with the dire pictures of deficiency disease described as due to the addition or subtraction of seemingly trifling amounts of certain food substances.

It is well that the pathological conditions entailed by defective dietaries are specific, for along with biologic tests of food values comes the knowledge that a satisfactory balance between health and disease is in such cases so definitely possible of control.

The importance of the whole subject of nutrition makes us particularly expectant in awaiting the "future research prizes" of the food chemist. It also gives interest to the contemplation of the habits of those peoples whose dietary régime has given them longevity and almost complete freedom from nutritional disorders.

of beriberi only served to emphasize the fact that this disease, so far as its cause was concerned, belonged to a category quite different from those among which diseases had hitherto been classified: a new class was therefore established, that of "deficiency diseases."

The idea that a pathological condition may be induced by the continued absence of something from the diet was none quite difficult for students of medicine to grasp, being propounded as it was during a period when the

*The first of a series; articles to follow will deal with vitamin A and vitamin C.

1. An excellent account of the work of Eijkman and other students of beriberi is given in E. P. Vedder's book, "Beriberi," by William Wood & Co., 1913.

a tempting problem for research, that consisting in feeding animals successfully over long periods on purely artificial mixtures of these substances together with a suitable supply of inorganic materials such as are needed by the animal body. Such experiments as these of course really require for their success a knowledge of the very fundamentals of the science of nutrition. As would be expected, the earlier experiments of this sort were failures. Perhaps the most significant suggestion as to the cause of failure was received from the work of Professor F. G. Hopkins² of Cambridge University in England, who showed that a diet that was inadequate for rats could be made complete by the daily addition of an amount of milk too small to permit of its beneficial effect being attributed to the protein, carbohydrate, or fat contained therein. These experiments suggested that milk contains some hitherto unrecognized substance—or substances—which must be present in the diet in order to maintain proper nutrition.

This work of Hopkins was soon followed by that of a great many other investigators, all of whom secured experimental evidence to support the hypothesis that in addition to the known essentials for nutrition such as protein for example, there are others which are required in only relatively small amounts; these newly discovered substances have been variously labeled, perhaps the more common designations being "accessory dietary essentials," "accessory food substances," and "vitamins."

Problems Converge

It is at this point that we find the study of beriberi and the investigations in the science of nutrition converging. Funk, who had accepted the idea that beriberi is a deficiency disease and had used the beriberi-like condition occurring in pigeons fed on polished rice as a basis of study, made many attempts to isolate from rice polishings and yeast the curative principle that was so potent against this disease. Although he did not achieve this completely, Funk came very close to it and secured a material that was extremely effective in curing pigeons of their beriberi-like condition even when used in almost infinitesimal amounts. Because he believed his material to be of *vital* importance to living organisms, and be-

cause this product appeared to belong to the group of substances designated by the organic chemist as amines, Funk proposed to call this important compound a *vital-amine* or *vitamine*.³

Since Funk's introduction of this word, students of nutrition have discovered the existence of other substances, which are necessary in very small amounts, for adequate nutrition; the description of these sister vitamin materials does not properly belong to this article. In order to distinguish these dietary essentials from one another, it has been proposed that the word *vitamin* be used to designate the group and that each of the members of the group be given, for want of a better designation, a letter.⁴ Thus we have at the present time, vitamin A, vitamin B, and vitamin C. As other substances essential to nutrition and possessing the properties characterizing the vitamin group are discovered, they may readily be classified by this system. Using this nomenclature, the antiberiberi vitamin has been given the title of vitamin B, one which it will doubtless hold until some organic chemist determines its chemical nature, whereupon a new name based upon and suggesting the exact chemical structure of the molecule of the substance will be conferred upon it. Discoveries of the exact chemical nature of each of these vitamins are among the research prizes of the future.

In recent years considerable vitamin B research has revolved around topics of interest in answering the question as to what people should eat in order to insure an intake of this important dietary essential.⁵ It has been shown that this vitamin is quite widely distributed among the common foods of mankind; that some foods are richer than others in their content of this important substance. For example, egg yolk, tomato juice, and dried yeast contain relatively large amounts whereas ordinary white bread has but little, and such a substance as beef extract from which bouillon for convalescents is frequently made, contains none of it whatever. The importance of such facts particularly to the doctor, nurse, and dietitian, hardly needs discussion. It is to research along these lines, and particularly to the discovery that dried yeast is unusually rich in its content

of vitamin B together with extensive advertisement of this fact, that we owe the recent prominence of vitamins in drug store windows, on billboard posters, and in other places.

It has been shown that, while animals at all ages require vitamin B, the growing organism is particularly sensitive to a lack of this substance. For this reason, the young rat has been selected by many investigators as the experimental animal for vitamin B studies. It should be stated that not all students in this field are agreed that the substance which cures beriberi in animals is identical with that which a young organism requires in order to grow normally. Research to date has not definitely settled this question.

The discovery of the importance of vitamin B in the maintenance of physiological well being has very naturally raised questions as to its function in the body. Why is it necessary? Such a question has to do more properly with the physiology of vitamin B, its mode of action in the organism.

Consideration of the fact that a starving animal does not develop symptoms characteristic of vitamin B deficiency, whereas one which persists in eating the deficient diet does eventually suffer, has led to the suggestion that the vitamin plays some part in the normal transformations which the better-known foodstuffs, namely carbohydrate, protein and fat, undergo from the time they are digested to the point where they leave the body as various excretory products. Some studies have been made testing the idea that the proper handling of carbohydrate by the body depends in some measure upon vitamin B, but no conclusive experiments along this line have been reported. A very similar notion has been suggested by different investigators: the vitamin may aid in some way the chemical changes of the energy-yielding foodstuffs, and, if this be true, the body's requirement for vitamin B may be greater if much exercise is indulged in. However, a very recently published study of the effect of exercise on the young rat's need for vitamin B reports that the animal's requirement for this substance is uninfluenced by muscular activity.⁶

The close relationship which vitamin B bears to the desire to eat is a recent observation of much interest; perhaps—(Continued on Page 561)

2. F. G. Hopkins, *Jour. Physiol.* xlv, 425 (1912). The particular experiments reported in this paper were undertaken to put upon a more quantitative basis results which were obtained as far back as 1906-07. The results of these earlier experiments were summarized in lectures delivered at Guys Hospital in June, 1909.

3. This word was introduced by Funk in 1911. A complete account of Funk's work and ideas concerning beriberi is given in his book, "Die Vitamine," published in 1914 by J. F. Bergmann at Wiesbaden. A recent English translation of this book is also available.

4. E. V. McCollum and C. Kennedy; *Jour. Biol. Chem.* xxiv, 491 (1915-16). J. C. Drummond; *Biochem. Jour.* xiv, 660 (1920).

5. The literature concerning this work is very extensive; perhaps the most complete recent review of it of interest to the general reader is given in *The Vitamins*, by H. C. Sherman and S. L. Smith, 1922. The Chemical Catalogue Company, New York.

The Cripple's Place in Society Through the Ages

Social Horror of Deformity Productive of a Bitter Introspection Which Is the Cripple's Chief Handicap

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LIFE is recognized by all as an economic struggle for existence. It is a trite saying that those who are unfit must succumb in this encounter, whether the struggle be mental or physical, but how, and by whom is the term unfit determined? Physical or numerical force directed toward an unfortunate is not always a just criterion. One physically weak or deformed very often proves a potent factor in society. By reason of this weakness his relation to society is frequently of a peculiar nature, influenced by a mentality working introspectively. Physical weakness or inferiority in an individual creates a peculiar state of mind, a mind on the defensive and desiring to obtain by other means that which a poor physique renders impossible. The unfortunate seems always imbued with the idea that he has been unfairly treated in the distribution of bodily favors, that society is opposed to him, regarding him as a useless being with no place in the economic structure. He becomes touchy, spiteful, vindictive and even malignant. This state of mind is reflected in all of his dealings with his fellows, and, in a man of power, with dire results: Witness, Alexander Pope, Alexander H. Stevens, and others.

In this paper the term cripple will be used to embrace deformities both congenital and acquired, malformations of limb and stature. It will thus be used in its original sense of "creeping." We will not enter into a discussion of congenital deformities, but the word "cripple" in the sense just given, leads us to contemplate Darwin's theory in this connection.

A cripple, that is, one differing in bodily appearance from the accepted

normal, a normal established by us who are the majority, is one who at some stage in its intrantrine development has met with some hindrance which checked further development in all or in part of the organism. It is thus a retrogression from the human

and the higher the species the more rapid relatively is the transit through the lower stages.

This retrogression in the human was not always acceptable to his more fortunate brothers who indeed regarded him as a true retrograde. He

was looked upon as a monster who had invaded in an unaccountable way a field foreign to him. *Homo sapiens primitivus*, always at war with his brute neighbors, regarded this strange product in his midst as something foreign and hateful, a product possibly of some diabolic influence. It resembled some fanciful creature the gravid mother had observed. At all events it bode ill for the tribe or family to which it came and the gods must be propitiated. What more natural or agreeable sacrifice than the monster itself?

The human mind in the early stages of civilization could not conceive of the imperfect, attributing it when present to some malignant influence. Our own word "dwarf" presents an interesting history. This word is derived from the Sanskrit "dhvaras," an evil spirit, suggesting that it was either the evil one incarnate or a product of

malign influence. The uncanny appearance of a being in miniature or crippled was repulsive and in itself suggestive of something malignant. This view was held throughout the development of human civilization, Chinese, Indian, European, and American. Religions of high and low morality, ancient and modern alike abhorred this unfortunate and heaped curses upon him. If the Chinese ordered his destruction, Christian Teutons did likewise. If the nomad tribes of Europe destroyed him for expediency, the highly civilized Spar-

The Cripple No Longer On the Defensive

THE ultimate goal of scientific endeavor is the elimination or control of all inherent defect. We enumerate our cripples now and special hospitals throughout the country provide every facility for early correction.

Best of all, the understanding attitude offers every possible opportunity for physical and cultural development while removing the causes of maiming accidents, for we are learning not to close the mental circuits of the physically handicapped.

Under such a system the personality defects due to distrust, a sense of inferiority or mental resistance are prevented and the erstwhile horrid cripple is free to become a social asset.

to some prehuman type. According to Hall (*Adolescence* Vol. 1), the individual in a general way, in the process of cell generation, repeats the history of its species passing slowly from the protozoan to the mitozoan stage, so that we have all traversed in our own bodies ameboid, helminthoid, piscian, amphibian, anthropoid, ethmoid, and we know not how many intercalary stages of ascent. The early stages of transition are telescoped into each other almost indistinguishably, so that phylogenetically the embryo lives a thousand years in a day

tans did so for apparently the same cause, though their method of reasoning may have been different.

Fear of the Deformed

The dislike or fear of the deformed may be attributed to one of four causes or conditions: dislike of the imperfect as among the Hebrews; economic reasons—the knowledge that he will be a burden upon the community; contribute nothing to the state; or that he will make a poor soldier, as among the Spartans; the idea that an imperfect body must harbor an imperfect mind as among the Romans; and the fear that the evil spirit must be concerned in the production of the monstrosity, as among the Europeans of the middle ages.

The imperfect in nature was always abhorrent to the human mind. The human figure, regarded as the acme of perfection in nature when normal, appealed to all of a man's senses; when abnormal the repulsion was equally as strong. This idea was highly developed among the Hebrews. They did not permit a cripple or deformed Levite or priest to officiate in the temple. No element of superstition entered into this. They regarded Jehovah as the supreme King possessed of some human attributes. These attributes existed to a vastly less degree, however, than among the Greeks. Since the Hebrew himself abhorred the imperfect and would not send a deformed or crippled ambassador to a mortal king for fear of offending his sensibilities, why send one of this type to the King of Kings? The laws of Moses here offer a striking contrast to those of Lycurgus. A cripple, priest or layman, was not to be destroyed. "Thou shalt not put a stone in the path of the blind" illustrates the relation of society to the physically unfortunate. The crippled priests were not permitted to officiate in the temple, but were given their share of the bread and the holy things. Among the infirmities preventing them from entering priesthood are (Book 3-21:18-19): lameness, too great length of one limb, broken leg or arm, crooked back, or dwarfed stature.

That a friendly spirit and sympathy always existed toward the unfortunate among the Hebrews is illustrated by a discussion in the Talmud (Sabath 6—fol. 66) whether a cripple should be permitted the use of his crutch on the Sabbath. This ordinarily was a double violation of the law. The pious Jew was not permitted to carry anything on the Sabbath, nor to touch objects the use of

which was forbidden. In the case of the cripple both of these objections were waived and he was granted permission to use his supports.

According to Daniel (1:4) persons with any physical blemish were not admitted to the court of the Babylonians, indicating the same abhorrence for the imperfect, but not carried to the point of destruction. The Babylonians were a military race comparable to the Spartans among whom a different condition prevailed. The entire fabric of Spartan society depended upon its soldiery, who must of necessity be perfect. We are told that every child at birth was brought before the assembled elders of its tribe who decided whether it was worthy to live and whether it was likely to become a useful member of the community. Those sickly or deformed were destroyed by exposure.

Among the Romans "*mens sana in corpora sana*" was a slogan. The right to destroy his children was vested in every Roman *pater familias*, and if he wished to abort the life of a cripple he was not called to judgment. Society as such did not demand this sacrifice.

The belief that the evil spirit was concerned in the production of the deformed and that he must be destroyed was prevalent as late as the days of Luther. At that time a belief was current that the devil helped maidens to the joys of motherhood against their wishes, and that these joys were of a singular nature in that the relation with the devil must result in the most horrid monstrosities. It was also believed that the devil gave these monstrosities to other decent people. Luther could not free himself from these beliefs (Hugo Magnus: *Die Aberglaube in der Medezin* s. 70). To the contrary he once heard that in Dessau such an unfortunate birth had occurred, and in all earnestness he advised that this product of diabolical love be thrown in the Mulde. According to medical judgment this monster was a rachitic child twelve years old.

Doctrine of Sin

The deformed was regarded either as the seat of evil, the devil incarnate, or the product of evil, in any case the result of sin. This doctrine of sin in this connection is variously applied:

(a) *Sin committed by the individual as responsible for crippling conditions:* This has been admitted in ages long before the etiology of these conditions was understood. In Luke V-21 paralysis is evidently regarded as a visitation of God's wrath for sin

committed. Jesus commands the paralytic to arise because his sins were forgiven. This view is not far removed from our present day conception of the etiology of certain forms of paralysis, following *tuberculous dorsalis* and syphilis of the brain. Do we not still ascribe these to sin? With the full knowledge of the causation in mind we do not shun or attempt to destroy an individual so afflicted, but rather offer sympathy and an attempt at amelioration. Naturally we do not adhere to the theory that absolution from the sin causing that disease will act as a curative agent, but we do attempt something along the same lines—to restore the sufferer to his original healthy physical condition before the sin was committed.

(b) *Sin committed by an ancestor near or remote:* The sins of the father shall be visited upon the children even unto the fourth generation. This theory we also admit, as in the ravages of syphilis. Although among the Hebrews this was the prevailing doctrine, still the persons so afflicted were not regarded as outcasts or as conceived in sin. They could not, however, abandon the idea that a supervision from above regulated these things. This is attested in the case of Jacob, whose crippled condition they attempted to ascribe to a supernatural origin. In all ages, even among comparatively recent writers (see Byron's "The Deformed Transformed"), all deformities were regarded as congenital. The Hebrews seem to offer an exception to this. Jacob's lameness was evidently a congenital dislocation of the hip. They assigned a traumatic cause but of supernatural origin. A fracture or dislocation among all peoples however primitive called for an immediate attempt at reduction. In the case of Jacob no such attempt is recorded. He remained a cripple and to this day his descendants are forbidden to eat the sciatic nerve of any animal, since this was injured in the struggle of Jacob with the angel of God.

The sin of the immediate ancestor may vary. Transmission of a disease or a mere sin of transgression of a command suffices. The medieval idea that the devil was concerned in the pregnancy of an unmarried woman illustrates this. We have not entirely rid ourselves of this idea, although a monster need not necessarily be the result.

Early in the history of the human race the idea must have prevailed that the evil spirit was resident in the human monster or cripple. We have pointed before to the Sanskrit word "dhvaras,"—(Continued on Page 565)

A Scheme for Classification of Delinquency in Children*

Pressing Issues Concerning the Problems of Treatment and Prevention

By FRANKLIN G. EBAUGH, M.D., DIRECTOR, NEURO-PSYCHIATRIC DEPARTMENT, PHILADELPHIA GENERAL HOSPITAL, PHILADELPHIA, PA.

THE problem of juvenile delinquency constitutes one of the most pressing issues that confront physicians, court authorities, parents, teachers, and social workers today. The extent of this growing problem necessitates a well balanced and constructed scheme for its study, especially directed with the viewpoint of understanding the facts that enter into the normal behavior response of the delinquent and formulating preventive measures.

In the approach to this problem from the clinical-psychiatric point of view, we must consider: (1) What are the personality assets of the individual that enter into his delinquency? Can we modify these so as to give better adjustment to the environment? (2) What is the situation that confronts the individual and how can we change this situation or environment so as to secure better adjustment?

To sum up, therefore, in studies of maladjustment, we must evaluate the emotional assets of the offender, the intellectual resources, the type of habit formation and instinctive development. In the study of the situation, we have the specific environment data to start with, such as—the character of home life, friction in the home, behavior of other members of the family which may influence the individual and condition later delinquent traits. It is well known that the experiences of the child may later dominate and pre-determine his behavior reactions.

Working from these points of view in a study of several hundred delinquents in a state home for boys,

we found the following classification of delinquency to be a helpful and workable one since it represents a summary of many factors found to be of causal relation to the behavior disorders present. This classification can be grouped into five heads, viz.—

bad companions; incongruity between home conditions and ability.

Habit and instinctive maladjustments also play a rôle in this group. Mental conflict, as a result of unusual early experiences with repression; lack of habit training; mal-

development of inner life; sex ruminations; day-dreaming tendencies; lack of correct sex knowledge must also be considered in the diagnosis and treatment of personality defects.

In the organic group, delinquency is found to be associated with definite organic disease such as syphilis, traumatic conditions, post-encephalitic behavior disorders, and tension states.

In the mental deficiency group delinquency is associated with definite reduction of mental capacity and ability, especially as demonstrated by the imbecile and moron groups.

Cases of infantilism, especially noted in pituitary dysfunction and disorders of the pluriglandular types, fall into the endocrine group.

The psychotic group includes adolescents who may present many features of actual psychoses, such as schizophrenic reactions, manic-depressive states, paranoid states, and constitutional psychopathic inferiority.

After tabulating the above tentative classification, one is confronted with the actual treatment of the boy or girl. We feel several abstracts may illustrate the types of individuals encountered, as well as show the value of the general dictum:—Always make a careful study of the exact situation in which the first delinquent trait was exhibited and determine the driving forces at work that resulted

First Classify; Then Prevent

PERSONALITY defects are of all degrees from those that manifest themselves in mild but excessive emotion under ordinary conditions to states of menacing pathologic maladjustment.

All degrees of delinquency are exhibitions of personality defect due to intrinsic or extrinsic causes. They may be classified as detected, but remedy lies in concerted work among parents, teachers, social workers, court officials, psychiatrists, and physicians.

Well equipped clinics, easy of access, for early diagnosis and grouping of cases for intelligent handling through out-patient clinics or observation wards in psychopathic hospitals are urgent needs of an adequate system of treatment and prevention.

personality defects group, organic group, mental deficiency group, endocrine group and psychotic group.

Personality Defects Group

This group includes neurotic children, emotionally unstable, over-active and under-active types and those suffering from bad environmental influences such as may be illustrated by the following: lack of parental correction, friction between parents or between brothers and sisters; poor hygienic arrangements; influence of

*Presented at the Medical and Psychopathological Symposium on Delinquency and Social Maladjustments, held at the Municipal Court of Philadelphia, February 23, 1923.

in offense against authority and property.

Our fundamental ideas of treatment are derived from observation and a study of the individual as a whole. In this study, always avoid deceit, avoid misstatements, treat with absolute fairness and squareness.

The following cases illustrate the role of the situation in delinquent careers and the degree of final adjustment:

Case 1, E. C.—A girl, age 14, was referred to the clinic with statements that she had been very indifferent in school, had been failing the last two months. She had been very impulsive and had been subject to frequent outbursts of temper. Recently she ran away from home to New York, from which place she was promptly returned by the Travelers' Aid Society.

Examination revealed an attractive girl of normal physical make-up. Her intelligence quotient is 115. The patient was very apathetic and disinterested during the interview. She was very reluctant to talk about her condition. Later, however, she admitted that she had a great upset last November. At this time, a boy friend, of whom she was very fond, insulted her and attempted to abuse her. Since this time, she has been preoccupied and frequently day-dreamed concerning this experience and had been unable to concentrate her attention to school work. Following this upset she began playing truant and, after a quarrel with her mother, who refused to allow her to go out any more, she got up at 2 a. m. and ran away to New York.

During the interview, it was explained to her how her behavior difficulties could be associated with her emotional upset and conflict. She admitted there was a relationship between the two and readily grasped these facts.

Since she has good insight into the nature of her difficulties and has followed our advice regarding an increase of her interests, she has not played truant and has improved in her school attitude. Her parents and teachers mark a general change in her behavior along all lines.

Case 2, S. S.—A boy, age 13 years. Committed larceny on numerous occasions; was unmanageable in school and was sent home because no one could discipline him. He was a failure in 4th-A. His delinquency began seven years previously, when the family moved to Philadelphia.

The patient was very sullen and had a defiant attitude during the examination. He felt he was always

blamed for everything that went wrong at home. He admitted sleeping in the cellar all night to keep from having his older brother "bawl him out." He also stated that he had planned to run away.

The patient's father is an invalid and his older brother assumed full responsibility for him and gives him daily prolonged lectures on "how boys go wrong," etc. The patient pays no attention to these. He states all members of the family are constantly wrangling with him. The usual punishment is to make him walk home from school with a younger brother who is a year ahead of him in school. The patient refuses to do this.

There has not been any improvement. The relatives could not be re-educated or see the advisability of less discipline and more encouragement and interest in the boy and his problems. They refuse to consider a change in environment.

Case 3, E. L.—The patient, age 15, frequently ran away from home and was very destructive. She had periods of temper outburst, was extremely religious. There was a history of possible sex offenses. She had no respect for authority of any source. She enumerated many physical complaints.

The patient revealed a normal physical examination. Her intelligence quotient is 76. She states she ran away because—"They had no use for me." "I would have to fight with her all the time," referring to her stepmother. Patient was extremely upset when older sister changed her religion and felt she should make up for her sister's mistake. She admitted sex delinquencies and preoccupations regarding them.

There was a change in environment with improvement after removal to Catholic Home. Ten months later, she again became restless and admitted occasional stealing and untruthfulness. This necessitated her return home, where she now is getting along better with her stepmother, who feels she appreciates home more than ever before. She continues over-religious.

Case 4, M. G.—The patient, age 8, was incorrigible, cursed and fought her mother. She lay on the floor, screamed and kicked. She beat her head against the wall. She behaved better with strangers, but had no respect for her mother and at times was destructive.

The patient's intelligence quotient is 110. She created a general disturbance in the clinic, yelled and jumped around, cursing and kicking every one near her. She was therefore admitted to the Psychopathic Ward.

A study of the situation was very striking in that it revealed that patient was taught to swear by her grandmother, and also never to pay any attention to her mother. She never had any supervision or discipline or habit training of any type at home.

Patient showed normal behavior response and adjustment to discipline of ward after a few days. She has begun school and is showing no behavior difficulties. There was a change of environment by means of Catholic Children's Bureau, which resulted in normal adjustment.

Organic Group

Case 6, V. L.—A boy, age 7 years. Patient had a prolonged attack of encephalitis January, 1921, with marked mental sequelae consisting of a hyperkinetic state with emotional outbreaks and impulsive behavior. He stole, had screaming spells, was quarrelsome and antagonistic. He had attempted to kill his brothers and sisters with a knife. He frequently kissed girls on the streets and showed marked sexual precocity. He was committed to the Philadelphia General Hospital by the Municipal Court for observation. The patient gradually improved under a fixed ward and occupational routine.

Mental Deficiency Group

Case 6.—The patient, a boy, age 11 years, was referred to the clinic on account of truancy. "He steals anything he can get," "pinches every child in school and has been unable to make any school progress." He is said to be doing 2nd-A work and has been in this class for three years.

Examination reveals that the boy shows a marked reduction in mental capacity and ability. Stanford and Healy A and B tests reveal a mental age of seven years and his intelligent quotient is 59. All reactions, both mental and physical, were slow. He showed poor distribution of attention. His performance tests were done at the six year level. Physically, he was undernourished and under-developed.

The boy has been unable to progress in school and his continued delinquency made it necessary to send him to a House of Detention. Since we consider this child trainable, we have recommended an appropriate institution where his education can proceed as outlined by his abilities and disabilities.

Endocrine Group

Case 7.—The patient was referred by the school with statements that recently—(Continued on Page 562)

The Method of Sewage Disposal in the City of Brockton

Plain Sedimentation and Trickling Filters are Used in Conjunction with a Sand Filtration Plant

BY HAROLD S. CROCKER, CITY ENGINEER, BROCKTON, MASS.

THE City of Brockton at the present time has a population of about seventy thousand. It is an inland city, situated at the upper end of the watershed of the Taunton river. The main drainage stream is very small, and therefore allows no opportunity for the disposal of sewage by dilution from its discharge therein.

The sewerage system was constructed in 1893 and 1894, and put into operation in November of the latter year. The system is a separate one, all surface drainage and ground water being excluded. The main intercepting sewers which collect all the sewage terminate at the southern end of the city in a covered storage reservoir, which has a capacity of about five hundred thousand gallons. The sewage leaves the reservoir proper, passes through a bar screen with three-quarter-inch openings, and enters the pump well, where it is picked up by the pumps and lifted through the force main to the disposal works about three miles away, in the extreme southwestern corner of the city.

The original method of sewage disposal adopted by the city was intermittent sand filtration. The area selected for the plant was admirably adapted for the purpose; there was no population in the immediate neighborhood, the nearest house being about 750 feet distant, and there being only about twenty-five dwellings within half a mile. The geological formation of this area was a coarse sand, with about two feet of subsoil and loam above. On this area twenty-three beds, each being about

an acre in size, were constructed.

The building of these sand beds was very simple, as the entire top soil was removed and piled to form the banks between the individual beds, and the sand surface was then graded to form a level plane.

Underdrains were constructed under each of the beds to carry away the effluent to the Coweaset River, another small tributary of the Taunton. This river, so-called, has a dry weather flow smaller than the quantity of purified sewage therein discharged.

The disposal works have been in

seen that the Brockton sewage is very highly concentrated, with a high color due to manufacturing wastes. It was found that a dose of about eighty thousand gallons of sewage applied every other day to each bed would give a highly purified effluent that could be discharged into the stream.

The original method of operation was to pump once or twice during the day time, depending upon how fast the reservoir filled. (In the earlier days of the system the reservoir would easily store the night flow.) At the end of the day, when the reservoir was pumped down to within

about a foot or a foot and a half of the bottom the agitator was started. The agitators was a series of pipes with numerous openings, laid on the floor of the reservoir, through which sewage was introduced under pressure from the pumps. The sludge that had settled was thereby forced into suspension, and pumping was continued until all the sludge was



Brockton Trickling Filter under construction, showing old half acre with the wall built to its new level preparatory to the placing of three more feet of crushed stone, flushing galleries, and main collecting conduit of the new acre, which is large enough for future additions to the right.

charge of a chemist since they were put in operation, and the dosing of the beds has been done in accordance with the results he has determined for the most successful working of the plant. From the time that a public water supply was constructed practically all services have been metered, with the result that the per capita water consumption is very low, being at present only forty-four gallons per inhabitant per day.

The industry of the city is the manufacture of shoes and allied products. As no water other than from the measured water supply and a very small amount of infiltration enters the sewers, it may readily be

stored in the force main, where it remained until the following morning. When pumping started the next day the sludge was pumped to one of four beds reserved for the purpose. This sludge after drying was raked up, sold to farmers, or buried in the low land at the plant.

With the increased number of connections, due to the extensions of the system and the increase in population, new area was needed. The best part of the natural deposit of sand at the disposal works lies to the west, across the city limits in the town of Easton. Legislative authority was asked to acquire that land, without success. Seven new beds were con-

structed in 1904 and seven more in 1908, making the total area at that time thirty-seven acres of sand. With the 1908 construction all available land suited for sand beds had been utilized. In 1911 a revolving screen of very fine mesh—forty holes to the inch—was installed at the reservoir to remove all the solids from the sewage, so that the four beds reserved for sludge could be used to treat the screened sewage. The same year a half-acre of trickling filter was constructed as an experiment. This filter was built of crushed stone varying in size from one and one-half inch to three inches and had an average depth of six and one-half feet. The

concrete floor sloped from one side to the other and had a total pitch of one foot. Six-inch split tile pipe was laid on the floor one foot on centers to collect the effluent, and discharged into the main collecting conduit which emptied into a secondary settling basin that had a detention period of six hours, wherein the sludge was settled. The effluent from this tank was piped to the last installment of seven sand beds for final treatment. The sewage was applied to the

stone bed through nozzles that sprayed the sewage for one and one-half minutes and then stopped for a like period. The entire area received the same amount of sewage. This was accomplished by building a small concrete tank of sufficient elevation to furnish the necessary pressure for the nozzles to spray properly, and the intermittent spraying was effected by the use of a butterfly valve operated by a cam that was driven by an electric motor.

During this period of enlargement, beginning in 1904, the increased size of the plant did not keep pace with the increase in sewage flow, so that actual purification results were slowly on the decrease.

Not being satisfied with the trickling filter even when being dosed at the rate

of about 1,250,000 gallons per acre per day—a low rate compared with most plants—experiments were carried on with the Activated Sludge Process. This method of disposal gave a very wonderful sparkling effluent, but a very large amount of sludge was developed, the disposal of which probably would have caused some difficulty during cold weather. A further experiment was tried by discontinuing the use of the rotary screen and using the receiving reservoir as a partial settling basin. It was not constructed for that purpose, but considerable settling action occurred, enough, in fact, to warrant the permanent discontinuance of the revolving screen.

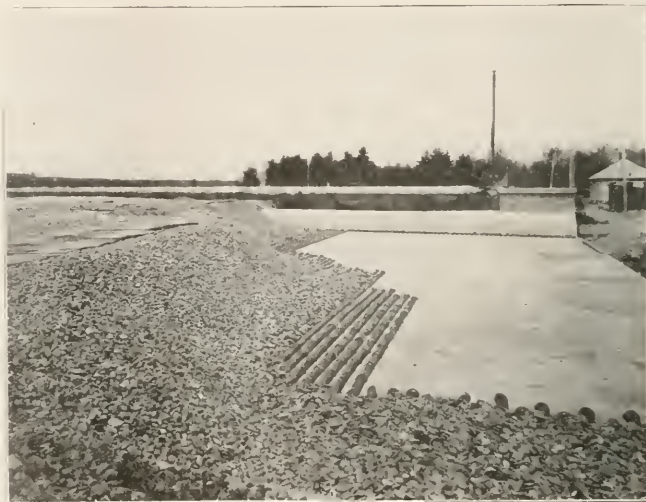
fine screen, purification at all parts of the plant increased, and the labor cost of maintenance decreased.

Further experiments were carried on during the war time with trickling filters of different depths. The size of stone was varied in these filters, and layers of different sizes were also tried until the most satisfactory combination was discovered.

As a result of the considerable amount of experimentation on plants of various kinds and sizes, some idea of what might be expected of various methods of disposal as far as the local sewage was concerned had been obtained. It might be well to state here that each individual sewage is a

problem unto itself, and one must prove for himself what method is best adapted to local conditions and not adopt a system because it was successful elsewhere.

The adoption of a preliminary treatment for the sewage was a simple matter. A short experiment with an Imhoff tank had not shown results that it was hoped might be obtained. As before mentioned, fine screening had not been given a first class chance to show results; and, in fact, it



One acre of the Brockton plant in operation with the nozzles spraying, and in the foreground a bed under construction, showing the flushing gallery and the method of laying the split tile pipe for collecting the effluent. The dosing mechanism is in the valve house at the right.

It seems only fair to say that the screen never had a real chance for success, as it was located above the top of the reservoir and the raw sewage had to be raised to its level by a small centrifugal pump. This resulted in a double churning action, once in the pump and again on the screen. The result was that the heavy part of the sewage was divided into such small particles that the voids between the several particles of sand at the top of the filters became clogged and the beds required constant plowing and harrowing to keep them in operation if the sewage was to be satisfactorily purified. This colloidal matter passed through the entire trickling filter process with the result, of course, that purification was quite low. With the elimination of the

did not give any satisfaction as a preliminary process. Furthermore, the screen being at the pumping station produced two places where sludge was accumulated, and it would have been much better to confine all refuse to one place. Such good results had been obtained by plain sedimentation with a structure not designed for that purpose, that it was decided to adopt the method and construct a tank of proper design, provided other things were equal. A screen located at the disposal works would have to be housed and the building heated. This would have meant an outlay of at least \$15,000, as compared with nearly fifty thousand dollars that the sedimentation tank cost. The maintenance costs, however, were very much different;—(Continued on Page 582)

Oregon Leads in Rehabilitation of Industrially Injured

Tragedy Is Transformed Into Opportunity and Development of Newly Found Capacity Keeps the Worker's Future in His Own Hands

BY FRANK H. SHEPHERD, FORMERLY DIRECTOR, VOCATIONAL REHABILITATION, CORVALLIS, OREGON.

THE state of Oregon has had, and we think still holds, the leading place in the United States in the work of returning victims of industrial accidents to remunerative employment. We were and are blessed with a law, brief in content, but far reaching in its administration. The purpose of the law, as clearly stated, is to return victims of industrial accidents to the industries. The money for this work is derived from a certain sum set aside from the workmen's compensation fund and replenished as used by a definite per cent of the fund paid in by the employers and employees to the workmen's compensation fund. The administration of this fund is left entirely to the State Industrial Accident Commission consisting of three men. They make rules and regulations and work out methods of doing this vocational rehabilitation. For more than three years the work has been successfully carried on in the State of Oregon and we are now in a position where we confidently say that we have done more and are doing more in this line of work than any such organization in the United States.

The problem of vocational rehabilitation is one in which society as a whole has or should have a deep interest. It necessarily follows that each individual and all civic, social, and economic organizations are interested in the development of this work. In our opinion the work of vocational rehabilitation is only one step of an economic procedure that has been recognized by all producers and employers for ages, but until recently not applied to the human element used in production. An individual or company starting in a business or industry takes into consideration the life of his machinery or equipment, sets aside a certain sum for replacement, or annually makes an allowance for depreciation in his machinery or equipment. In the case of machine shop equipment as an illustration, if a part of a lathe be broken, and it may be repaired by putting in a new gear, head, bed, whatever the broken part is, this is rehabilitating

that lathe by physical repair, and saves for a time, possibly many years, the expenditure necessary to buy a new lathe. The workmen's compensation fund is the money set aside to be expended in caring for and restoring the human element in industry.

We do not care to enter into a technical discussion of the loss occurring



Fig. 1.—This man, so badly burned that without special apparatus and persistent scientific effort he would have remained hopelessly deformed, is back at his old occupation in the logging woods.

in industries annually, nor do we care to attempt to show by statistics the annual loss in production by the introduction of new men into an industry. It is well known to all who have made a study of the problem of hiring and firing that it costs an employer considerable money to break in a new employee. The amount, of course, varies with the industry and also with the individual being broken in. As an illustration of some of the work we have done that meets this particular phase I refer to case No. 112,016, an individual who was injured while in the employ of a very large manufacturing plant. He had worked there about eleven years, had seen the plant grow from a small industry to one of the largest ones in the state. In fact, "he had become a part of the concern." His injury to-

tally incapacitated him for the work he had been doing. After interviewing the man and making a study of his past experiences, vocational handicap, home environment, and other determining factors, we made arrangement with the company where he was injured, permitting him to go into the machine shop and receive special training in tool grinding. After eight months of this work the foreman of this particular department reported that the man was highly efficient and should be placed on the payroll with a wage as other employees in the tool and die room. This man has a wife and three children under fourteen years of age. When he was first interviewed he was apparently helpless and was fearful that he and his family would become public charges or objects of charity. The amount expended for sustenance while this man was receiving his apprentice training was \$620. This money was given to the man and his family from the rehabilitation fund of the workmen's compensation fund, and was not considered as charity, but as pay for his work in the shop, so as to make it possible for him and his family to live without the aid of charitable organizations while getting this training.

Consulting statistics on the subject, we find that it costs approximately six hundred dollars per year when a man and family are taken care of by the county or charitable organizations. With the expenditure of our \$620 we fitted this man to support himself and family, and after eight months he began drawing the regular scale for this class of work. To speculate as to what might have been in a state where no provision is made for vocational rehabilitation, we may construct our picture from the daily records of the coroner, the police department, the courts of domestic relations, the industrial schools for boys and girls, and from other civic organizations dealing with the problems of the "unemployable."

We early recognized the fact that many injured individuals may be vocationally rehabilitated by physio-

therapy or corrective treatment as illustrated in Figure 1. This man was a timber faller. A can of gasoline near where he was at work exploded and burned him severely. For a time his life was despaired of. The burned portion covered his entire body, hands and arms. The breast and throat were very badly burned. During the process of healing the scar tissue drew his chin down until it was impossible for him, when he became ambulatory, to see anything above the level of his eyes. Dr. Dillehunt prescribed treatment in the physiotherapy department. The expert who has charge of making appliances made the harness the man is wearing, and for some time put pressure on the chin to hold each day what was gained by the treatments. After about three months the man had so far improved that he could read the advertisement of a furniture store on the top of a five-story building across the street from the office. After about five months' treatment, though not from the date of injury, the man returned to his former occupation in the logging woods. This was made possible by the physiotherapy or corrective treatment.

We have been able to show wonderful results in this work very largely due to the fact that we have not been handicapped by legal regulations or wordy laws that are hard to interpret or understand. The act makes it possible for the State Industrial Accident Commission to rehabilitate the man and intrusts to the members of the State Industrial Accident Commission the authority of making rules and regulations for the proper administration of the law and the efficient rehabilitation of the men. The members of the State Industrial Accident Commission in the state of Oregon, when given this authority, de-

cided that they would as far as possible eliminate all red tape. With the first case reported and investigated we began discussing the reports and

study of the case and is intended to uncover a number of conditions existing, particularly his present environment and his past experiences.

He is then called for an interview and if he desires vocational rehabilitation and said vocational rehabilitation cannot be accomplished by physiotherapy or corrective treatment and may be accomplished by training in school or on a job, the man is assigned to a school, factory, mill or other industrial work so that it may be possible for him to be trained in his chosen field. In the state of Oregon use is made of all existing institutions such as the agricultural college, the polytechnic school, business colleges, etc.

A case to illustrate the methods is shown in Figure 2. This



Fig. 2.—Even a broken back in this injured workman has not proved such a handicapping experience as to prevent his restoration to physical usefulness and a new mental world through being retained in architectural drawing.

young man had two years training in a city high school. Through the war period he was working in the ship yards and fell from a scaffold. His back was broken. After fourteen months in a hospital his case came to the attention of the vocational director and a number of visits were made. The mental condition of the young man was at that time the big problem. It took a number of visits and many heart to heart talks to get him to see the brighter side of life. After discussing the possibilities it was decided that he would take up drafting and architectural drawing. A teacher was provided and for about three months the teacher called twice a week. A table was built as shown in the picture and the young man began his work. While this was going on the vocational director discovered that a possibility of some improvement by a surgical operation. The surgeon examined the man and after a month or two decided that it was possible to get this man to walk by certain surgical operations if successful.—(Continued on Page 576)

forms necessary for his case. From this and following cases we soon developed a simple form for keeping records of all cases. The commissioners have established as a working basis for vocational handicap the period of forty months. When the final award is made and the man is reported as being entitled to forty months compensation, we assume that he is vocationally handicapped. This man is then sent a questionnaire.



Fig. 3.—This man, with permanent and serious injury to head, back, and leg, has during the period of training earned his living and paid for his equipment, and this in the face of a physical condition at first held untrainable.

(Form No. 202-A). He is asked to fill this out and return it. This is for the use of the Director of Vocational Rehabilitation in his preliminary

and after a month or two decided that it was possible to get this man to walk by certain surgical operations if successful.—(Continued on Page 576)

Practical Methods for Removal of Dust and Fumes*

The Chemist and Engineer Work Jointly to Detect and to Remove at Its Source the Health Hazard from Air Pollution

By H. H. VALIQUET, CHICAGO, ILLINOIS.

PRACTICAL removal of dust and fumes comes through knowledge and through the special study of each problem presented. Nothing helps more to the end in view than similar problems and it goes without saying failures often teach more than success. One familiar with fan applications in the last fifteen years knows the science of practical application has taken a new step with the more general use of instruments for accurate duplications of flow of gases.

This has developed a coefficient of 0.71 for wood working hoods under average conditions or in other words one-half of the potential or (total energy in this case) that existing at point of connections to hood is converted in velocity of flow and the remaining half is required to overcome losses. This coefficient is considered one of the practical values used in the new step of fan application to dust removal.

On the other hand, besides the accurate determination certain empirical ratios have been accepted as good practice, such as ratio of one to twenty or area of hood connections to area of hood, and forty per cent over-all efficiency for transposed draft in indirect applications of air jets for spray—both exhaust.

The practical tinsmith is in a position, as he always has been, to say such a job will take forty horse power because one over the other side of the street is twice as large or has twice the number of openings and takes 80 h.p., or better still a good blow pipe man can say you have twenty openings and need $2\frac{1}{2}$ inch suction, will lose $1\frac{1}{4}$ inches on the intake, two inches on the line, $1\frac{1}{4}$ inches through a separator and consequently need 10,000 volume and require 15 h.p. motor.

Most of this data is available for the asking from the larger fan companies, but it rests with specialists to treat special cases of application.

Take even a simple case of grinding or polishing of metals—how many engineers or even men with practical experience combined with engineering, such as most members of the National Safety Council, specify hoods adaptable to the different heights of men or arrange exhaust equipment with an eye to conserving waste heat? There are two types of installation where dust laden air is rendered clean and returned to the room conserving heat. All installations of this nature

where we must look to these chemical engineers for information to make an installation effectual and truly practical.

In many cities there should be some movement on foot to eliminate the dust of the streets and city air in general. This is neglected to a large extent and becomes more noticeable during March winds.

On the subject of practical methods of dust and fume removal, let me touch on some more recent branching out along these lines. In handling exhaust from granite and marble surfacing machines or hand work on this material, three installations have been made in three years. One recently in Wisconsin having eight 4-inch openings for hand lettering, two 8-inch on surfacing machine connections, and five h.p. for this work is inadequate, from my experience, as $2\frac{1}{2}$ h.p. per each four 4-inch openings or each 8-inch opening is the standard set by tests at Barre, Vt., in which I took part. The surface has been just scratched in this field of dust elimination.

In paint spraying work the field is just being covered by the indirect or aspirating method of fumes exhaust. This costs three times as much as the present direct method of drawing paint-laden atmosphere over motors and fans, but eliminates consequent hazards and uncleanly results.

Paint should be drawn downward, whether dry dust in rubbing down castings or in spraying wet pigment. This is contrary to the practice in the average factory.

The core oven is another neglected source of air pollution that is coming to receive something approaching proper attention. The doors should be hooded at top and 250 to 500 feet velocity maintained over the full hood area. The hood should extend three feet in front of door and along the full openings over the oven. The removal of castings from hot molds gives another example of dust hazard sadly neglected.—(Continued on Page 574)

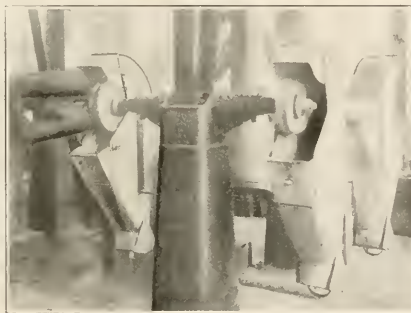


Fig. 1.—An excellent example of blow pipe installation and buffing wheel hood, well trapped, in plant of the Victor Talking Machine Company.

could be so adapted as to effect a saving of air heat, but sand blast, painting, rubbing down of machinery and handling air from nippers or teasel gigs are successfully accomplished in this way.

With due credit to these practical steps in advance of this dust eliminating hazard, there is still a greater need for the help and knowledge of the government bureaus, especially that of the Bureau of Chemistry and Bureau of Mines.

Cyanid baths and acid exhaust, the handling of carbon dust, of grain, of hydroscopic material like malted milk or soda ash—here is a field where chemistry and mechanics are consolidated. Estimation of the parts of oxygen present per part of dust, consideration of factory of temperature and humidity mean something to the chemist and brings the practical consideration of the problem to a point

*Address before midyear safety conference, Engineering Section, National Safety Council, Chicago, April 17, 1923.

Health Administration in Virginia

Public Schools

The University of Virginia Gives for Teachers a Course in Health Education that Leads to a Bachelor of Science Degree

BY MARY EVELYN BRYDON, M.D., DIRECTOR OF THE BUREAU OF CHILD WELFARE, STATE BOARD OF HEALTH, RICHMOND, VA.

THE authorities of the Commonwealth of Virginia believe that it is the function of the state department of education to direct the instruction of the child; and that it is the function of the state board of health to help the child to become physically fit to receive the greatest possible benefit from the educational process, in order that the children of the state may develop into strong and efficient citizens with the right attitude toward health as one of the most valuable possessions to be acquired. The increasing attention directed to the proper care of children during infancy and early childhood will in time greatly improve the average health condition of pupils entering the schools, at present so universally deficient. For this generation, however, the best that can be done for the school child is to correct defects when possible, make the environment sanitary, and train the future fathers and mothers in healthful habits and ideals.

The problem in Virginia has been to supply to the children in its many rural schools the physical inspection and health instruction that is now generally available to dwellers in urban communities throughout the country. The work now carried on by the state board of health and the state department of education is in compliance with the provisions of Chapter 327, Acts of Assembly, 1920, known as the West Law, which provides "That after the first day of September, 1923, all pupils in all the public elementary and high schools of the state shall receive as part of the educational program such examinations, health instruction, and physical training as shall be prescribed by the State Board of Education and approved by the state Board of Health." and that "The state Board of Education, with the approval of the State Board of Health, shall establish regulations whereby on or after September, 1925, no applicant may receive a certificate to teach in the schools of this state who does not

first present satisfactory evidence of having covered creditably an approved course in general physical education in a training school or course for teachers recognized by the State Board of Education as a school or course in good standing." During recent years, Virginia has suffered, as has every other state, from the diminishing percentage of doctors. When the West Law was passed, its proponents knew that there were not in the rural sections of the state enough medical men to make examinations. A plan was therefore formulated to utilize the state's teachers in promoting the health and vigor of pupils and in preventing the spread of communicable disease by the following program:

(a) The teachers shall be instructed in the fundamentals of safeguarding the health of their pupils by securing healthful environment, and by inculcating health habits.

(b) The pupil shall receive an annual health inspection to determine his physical fitness.

(c) Any physical defects thus brought to light shall be corrected; and, since the logical persons to encourage corrections are the public health nurses, it is proper that the employment of such auxiliaries to education should be aided by means of financial assistance to counties employing them.

(d) After the children have had their physical defects corrected, they shall be returned to school to receive health education and physical education as a part of their course of study.

A Joint Program

This program is carried out by the following means:

(a) 1. Health instruction for prospective teachers at normal schools and other teacher-training institutions under the joint supervision of the State Board of Health and the State Board of Education. 2. Establishment of a correspondence course in physical inspection and school hygiene conducted by the State Board of Health and the State Board of Education.

(b) Requirement of physical inspection of all pupils by the teachers, under supervision of a school nurse or health supervisor where there is one, within three weeks after the opening of the school; the individual reports

of these inspections sent to the parents; tabulated reports sent by the county superintendents to the State Board of Education.

(c) Promotion and supervision of public health nursing by the State Board of Health, especial emphasis being laid upon supervision of health work in the public schools until the teaching force is sufficiently organized by the State Board of Education to relieve the nurse of this duty; and the promotion of correctional work in the rural districts for the purpose of correcting the physical defects brought out by the inspection. This includes, according to the stage of public health development in the various counties, the following: Dental clinics, adenoid and tonsil clinics, eye clinics, orthopedic clinics, nutrition classes, and systematic measures for the elimination of intestinal worms.

(d) Financial aid by the State Board of Health to assist counties in establishing nursing services and correctional work.

(e) Supervision by the State Board of Education of: (1) Instruction in physical education of prospective teachers in normal schools and other institutions having teacher-training. 2. Physical education in the grades. 3. Financial aid to assist counties in establishing physical education directors in the schools.

As a beginning of the work assigned to the state board of health, a course of five lectures on physical inspection and school hygiene—all that could then be crowded into their already full curricula—was given to the normal schools and some of the colleges of the state. This number was later increased to ten, as the colleges and normal schools became interested in the problem and began to realize the full import of the provisions of the West Law.

Last year twenty-five out of thirty-seven colleges and normal schools had courses for prospective teachers dealing with school hygiene, physical inspection, and physical education. These courses are required to have a minimum of thirty-six hours a year; and eleven of the schools have exceeded this time requirement. Two of the normal schools are for colored teachers. The courses are also given in all of the nine summer normal

schools; and in the extension work carried on by three of the institutions.

The culmination of the teacher-training side of the work was recently reached with the deans of the University of Virginia, who, recognizing the need for college-trained health instructors for the teachers of the state, recommended to the president that the University should grant a Bachelor's degree in Health Education. This recommendation was accepted by the faculty; and the course of study leading to this degree will be offered for the first time at the opening of the fall session of this year.

Teaching by Correspondence

Another difficult problem to be solved was that of the teachers already in the schools who were required to fulfill the conditions of the West Law. As it was not possible for all of these to avail themselves of the courses given in the higher educational institutions of the state, a "Health Manual for Teachers" was prepared in cooperation with the teacher-training department of the state board of education, and preparations made for a correspondence course in physical inspection and school hygiene. This course is credited by the state board of education only on new first and second grade certificates; and on the renewal of any certificate issued prior to July 1, 1923. Holders of collegiate professional, collegiate, normal professional and special certificates issued prior to July 1, 1919, are permitted to satisfy the requirements of the West Law by securing credit through this correspondence course.

The course consists of twelve lessons and a final examination covering the following subjects: physical inspection of school children; school sanitation, or control of communicable diseases; personal hygiene; prevention of accidents and first aid to the injured; essentials of physical education; the teacher's health; and methods of teaching hygiene. No fee is required for the course, the students merely paying the postage and buying their own texts.

So much for that part of the problem relating to the instruction of teachers. What, then, is being accomplished in the schools?

After hearing that the teachers must make an inspection of the children, naturally, physicians and other well informed people will protest that teachers, as a class, are not able to make physical inspections approximating accuracy. That is indisputable if by the term, "physical inspection,"

is meant such an examination as would be made by a trained physician; but it does not require years of training in medicine to determine whether a child's sight is obviously defective or his hearing impaired. An ordinarily intelligent person can determine whether a child is a mouth or nose breather, and knows that if exclusively or principally the former, there is something wrong requiring medical attention. The distinction that is made between "inspection" and "examination" has been illustrated by the simile of a person buying a desk. The prospective purchaser looks the desk over, feels it to see if it is well finished, opens the drawers to see if they run smoothly, pushes against it to see if the joints are solid, etc. That is inspection. If it is found that one of the drawers will not open properly and that there is a rough place on the surface that would interfere with writing, the desk is then sent for "examination" to a cabinet-maker who can soon determine why these defects exist and the proper method of correcting them.

"Inspection" of school children can be done by teachers, who will detect a large proportion of the more serious defects in their pupils. The teacher can then recommend to the parents that the defective children be sent to a physician who can "examine" them and take any necessary steps for effecting the needed repairs.

The state superintendent of public instruction has instructed the division superintendents to set aside a day in the fall for inspection of the children. This is an advantage that could not have followed had the state board of health been in sole control of the work. A distinct advance in this direction has been made recently when the state board of education and the state board of health jointly employed a supervisor of health work in the rural schools.

On the appointed day each year every teacher in the state tests the vision and hearing of the pupils; inspects their teeth; and weighs and measures them for comparison with standard height and weight tables. Teachers are not yet required to inspect throats; but the better trained teachers do this also when no nurse or doctor is available.

When the inspection is completed the teacher sends a notice to the parents of all children found to have defects. On the reverse side of this notice is a letter from the state commissioner of health, setting forth the danger of neglecting the health of children.

The focusing of attention on the ultimate physical fitness of the child, on the necessity of becoming healthy and keeping healthy, is the outstanding objective of this work. Already the required inspection has resulted in an increasing intelligent interest in the child's well-being on the part of the teacher; this is shown by the fact that some teachers have secured 60 per cent of correction of defects. These corrections must result in a marked lightening of the labors connected with the teaching process, for both teachers and pupils.

Method Commands Attention

Tabulated reports of the results of inspection are made to the county and state superintendents. The individual grammar and high school record cards, which follow the pupils from room to room and from school to school, have on one side a form for recording academic grades and on the reverse side a form for the record of physical inspections from year to year.

The result of the first inspection showed such a large percentage of dental defects that the next step in advance was obviously the establishment of clinics for the correction of these defects.

At present there are ten whole-time dentists doing this work in the rural districts under the supervision of the state board of health; and during the fiscal year ending September 30, 1922, they treated 8,135 children, involving 28,805 operations. Each dentist holds his clinic in a school and remains there as long as needed, then passes on to another. A fee of fifty cents is charged for each operation and the state board of health and the county organization responsible for the clinic make up the deficit.

Tentative figures for the physical inspection of school children for the year ending June 1, 1922, are shown in Table 1. It shows that more than 58 per cent of the school children in

TABLE 1.—PHYSICAL INSPECTION OF SCHOOL CHILDREN—YEAR ENDING JUNE, 1, 1922

	Total for Counties	Total for Cities	Total for State
Enrollment, 1921	414,610	110,246	524,856
Number inspected	193,099	143,433	336,532
Defective eyes	39,916	4,283	44,199
Defective hearing	13,236	1,196	14,432
Defective teeth	108,252	24,526	132,778
Defective tonsils	7,367	1,834	9,201
Underweight	20,287	4,058	25,345

the state were inspected during this period.

Summary of Progress

As a result of the passage in 1920 of the West Law the Commonwealth of Virginia has in operation a program that provides for training teachers in physical inspection, health education and physical training. Prospective teachers receive this training in twenty-five schools and colleges of the state. Twenty-three of these give to these subjects thirty-six or more hours of instruction. The teachers in the field who are unable to receive instruction otherwise are reached by a correspondence course. In the schools and colleges 1,628 pupils were taking such a course in the session of 1921-1922; in the two years since the correspondence course was established, 1,689 have enrolled. The University of Virginia has undertaken to give, beginning in the fall of this year, a course leading to the degree of Bachelor of Science in Health Education.

Each year the children in the schools are inspected by the teachers and nurses and a great many of the defects discovered are corrected by means of follow-up work conducted by the school nurses, or the Red Cross social workers, or the teachers. Thirty-one of the hundred counties of the state have nurses for school work and receive aid from the state.

Virginia has embarked on a policy that promises to become very effective in dealing with the problem of health in the rural schools.

Physical Examinations of Teachers

All teachers in the public schools of the District of Columbia are required to undergo a thorough physical examination before their appointment.

The school medical inspectors recently examined 142 applicants for teaching positions in the public schools, 57.7 per cent of these were passed as physically eligible, 38.7 per cent were passed conditionally, subject to reexamination at the end of their probationary appointment, to determine whether minor defects had been corrected, 2.8 per cent were rejected temporarily due to more serious defects pending correction, and .7 per cent were rejected permanently on account of permanent serious physical defects.

Of the applicants examined, 21.8 per cent had defective nutrition, 15.4 per cent defective vision, 8.4 per cent defective teeth, 3.5 per cent diseased

tonsils, 2.8 per cent enlarged thyroid, 2.8 per cent cardiac conditions, 1.3 per cent defective hearing, 1.3 per cent pulmonary disease and there were .7 per cent each having the following conditions, exophthalmos, nervousness, hay fever, and serious constitutional disease.

The Henry Street Nurse



World Wide Photos

The future of public health nursing is largely an extension of the ideas and ideals growing out of the work of Henry Street Settlement and contrasts between past conditions encountered by the Henry Street Nurse and the present situation mark the milestones of progress in neighborhood service. Everyone is glad that the Henry Street nursing service now has an administration building worthy of the enterprise. The picture shown is reproduced from a painting, the work of the artist Reni Mel, presented by the French to the American Legion.

Survey Needs for Community Dental Service

A report of a survey of dental needs and facilities in various cities of the United States with special reference to a dental program for Chicago contains many interesting statements. It is estimated that 20 per cent of all the teeth of school children are in a state of decay; only about a third of public school children are found ever to have been to a dentist; while the large number with crooked or irregular teeth makes it desirable that every child be seen not later than the age of five by a dentist with some training in orthodontia.

Michael M. Davis, Jr., the author of this report also found that the need of oral surgery for adults, exclusive of extractions, was comparatively

rare, not over one per cent requiring it, and that a complete set of false teeth were required for a small proportion of adults, not over two per cent.

It is estimated that there are at present eight hundred fewer dentists in the United States than in 1920, "owing to higher standards for entrance requirements now being introduced in the dental schools. The combination of a reduction of students due to the war and the further reduction due to the lengthening of the course has created a particularly serious scarcity of dentists at the present time. It is difficult for the dental infirmaries to keep their staffs up to full strength." There is at present one dentist to about 2,400 population.

Legislation has provided for the licensing of dental hygienists in twelve states. The total number of graduates from all existing schools now numbers about 470. The total number in last year's classes was 136. "There is considerable apprehension that the dental hygienists will be absorbed as quickly as they are graduated into the offices of private dentists, as the majority have been so far."

Dr. Davis believes that adequate dental facilities for a community cannot be built up on the basis of private practice; that preventive dentistry in particular cannot be developed as a part of private practice; and that facilities for dental work supported by public or semi-public bodies must be depended on to provide dental facilities for a large part of the adult population and to furnish almost all the preventive facilities needed for the children.

Comparison shows that the dental facilities of Chicago are far less than those of many smaller cities. The following system is recommended to meet this need: (1) A central institution of approximately 60 chairs; (2) four branches, approximately thirty chairs each; (3) school clinics (for curative work), located in outlying districts and supplementing the branches; (4) dental prophylaxis and instruction in oral hygiene for all school children, to be done in the school, according to the Rochester plan, by traveling squads of hygienists under centralized dental supervision; (5) the central institution to be under an independent board, but affiliated with medical and dental education and with a general hospital; and (6) dental research to be an integral part of the program, and provided for in the facilities of the central institution.

Maternity Homes and Baby Farms in the State of Texas*

For Improving the Conditions Pertaining to Women and Infants the Service of the Obstetrical Clinic Must Be Improved and its Service Extended to as Many Women in the Community as Possible

BY MRS. THEO. REESE, STATE BOARD OF HEALTH, AUSTIN, TEX.

THE status of maternity homes which I have visited and made reports on is not ideal. It is impossible to anticipate too much from these homes since there have only been nine months of active field work in this line, but I find that most of them are willing to accept advice and improve most of the existing conditions that are contrary to law.

The ultimate aim of a maternity home should be to preserve health and return the patient home in an excellent physical condition. At the same time the environment of the maternity institution should be such as to exercise the right sort of moral influence over the patient.

If these homes are to protect her in society, her health should be of vital interest to herself, family, and state. This can be accomplished only by having doctors or obstetricians of ability to supervise and do the work in these homes. Most of the homes permit the girl to select her own doctor, or the home has on its list several doctors, any of whom may be called. A very few have an obstetrician in charge who does all the work, or at least the supervision, which would assure good service. It is apparent that a maternity home of this sort should be equal to a maternity hospital open to all classes of people.

Most of the private maternity homes are not as well equipped as the average public institution. Therefore, the work in a public maternity hospital should be better than the work in a private maternity hospital for this class of girls. The type of private maternity home referred to is one opened up by some lay person, as are the larger percentage of these homes. For example, in several towns I found maternity homes conducted by women who previously kept disorderly houses. To them it was of commercial interest and not for the welfare of the unfortunate. I mention this deplorable condition so that prop-

er action may be taken to stop issuing licenses to these people by the local authorities. In one instance one of these women who was refused a license to operate in her own town, to evade the law, moved out of the town limits and secured the approval of the county authorities who were not familiar with her past.

Maternity homes should be properly manned by competent nurses and supervised by an obstetrician conscientious and interested in his work and in the social life of these girls. This combination will make a good maternity home.

It is almost impossible for one inspector to accomplish all desired by the state. The city board of health should cooperate with the state health department in weeding out, and assisting in the development of a condition where the mother will have proper attention equal to that given in any hospital. State and city officials are not doing their duty to these unfortunate girls unless these maternity homes are properly conducted.

Baby Farms Flourish

With the question of maternity homes, it is necessary to give some attention to the problem as to what becomes of illegitimate children. Unfortunately, our own state law does not specify what shall be done with these children. Some of the so-called maternity homes for illegimates permit adoption of babies directly therefrom, while others do not. A few homes for these illegitimate and abandoned babies are run by competent and responsible individuals, such as Faith Home, Houston, Hope Cottage, Dallas, and the Texas Children's Home and Aid Society, Fort Worth, through which adoption may be made. Personally, I believe that the maternity and founding institutions should be separated if we hope to reach the highest point of development. As is well known, some women confined in maternity homes keep their babies.

The condition in some of these

homes is hardly appreciated by those who have never visited them. In one instance a keeper of a home when prosecuted for procuring, openly boasted that "she sold babies born in her house, and sometimes if she could not sell them she gave them to the garbage man or anyone else who happened along." Another woman who offered to buy babies from girls confined in a hospital placed at least one child born in her maternity home with a prostitute. These are doubtless extreme cases. It is undoubtedly true, however, that in many cases the commercial factor enters into the question of disposition of the child.

What we have to consider here is the question of the unwanted child. Frequently the unmarried mother does not want the child, or her family does not. She goes to a maternity home for the purpose of getting rid of the child. The infant is deprived from birth of all social safeguards ordinarily thrown around the child of married parents. The matron of the maternity homes, if she is not especially scrupulous, disposes of the baby as seems most convenient or profitable to her. But if she is conscientious, she will place the child in the hands of people whom she believes are capable of raising it properly, though in such cases certainly there is far too little assurance that the home is really a proper one when not obtained from a responsible founding institution.

Placing of children requires careful investigation and supervision by intelligent workers. When one examines the question closely, it is difficult to escape the conviction that the public does not accord the illegitimate child the same right to a fair start in life that it thinks other children should have.

The baby peddler, the free lance man or woman whose means of livelihood is the placing-out of infants, usually depends upon these maternity homes for the supply of children. By the terms "baby peddler" is not meant an organization, supported by charita-

*Read before the Twelfth Annual Meeting of the Texas Conference of Social Welfare, Dallas, Texas, October 15-18, 1922.

ble contributions, whose work it is to find homes for children, but men and women traveling throughout the state, not responsible to any private or public body, who deliberately traffic in the offspring of unmarried mothers. That they operate under the guise of a religious cloak does not make their work the more commendable. One such individual who abandoned his own children to a child-placing society several years ago peddles children for what he terms expenses, though these expenses include a liberal allowance for car fare when he travels on railroad passes.

Before these conditions can be improved, certain changes will have to be made in the laws relating to maternity homes and illegitimate children. If the statutes provided, as it is now the law in some states, that no mother should be allowed to give up her baby until it was at least three months old, except to safeguard the life of the mother or child, and several homes in Texas do require this, we would be able to strike at the root of the difficulty which is the easy abandonment of children by parents. We must face the facts that to allow a mother, though unmarried, to desert her child at birth, is to encourage a shifting of responsibility which is highly undesirable both for the mother and the child. In addition to this there should be strict regulation by state authority of all individuals and organizations engaged in placing children. The state should set up certain standards required of everyone who undertakes this important work. Much is also to be said in favor of a law which would make the state automatically the guardian of every child born out of wedlock.

Homes for babies should be of the very best, supervised by those who believe that the waif is entitled to life, liberty, and happiness, the same as any other child. Persons who do not believe this, should not have supervision over these little unfortunate children. We all know they suffer enough and that they should not be bartered on the streets like cattle. Social workers should strive as never before and abolish homes that are bartering these children and should properly place the children so that their future will not be so dark.

A High School Board of Health

Though not a recent innovation in the school health and hygiene program, the organization of Health Clubs and Student Health Societies heretofore has been confined to the

elementary grades. With a few adaptations and changes, the work of the Health Club can well be carried over into the ninth, tenth, eleventh, and twelfth grades and may prove a very potent factor in modern high school life. "Self-imposed rules of health and hygiene are of more permanent value than those thrust upon us by others. Self-instruction in personal health can thus be developed and, not infrequently, instruction can be combined with service. The high school student at this age demands some work which will bring a sense of self-reliance, initiative and self-control. He no longer accepts, *"sans contrainte,"* the commandatory rules of health instruction as given him in the lower grades. He wishes to investigate, to learn for himself, if, at this significant stage of life he is awakened to the value of regular personal health habits and clean, wholesome living as it relates to himself, to his class, school, and community, he will be well started on a path of ideal citizenship. In fact, no better training for citizenship may be conceived than the organization of such work in the high school.

In the Pittsburgh, Pa., High School, the Health Club work has been made a part of the Student Government Organization and effectively functions as a student activity. This Student Board of Health is composed of one representative (known as the Health Officer) from each report room, popularly nominated and elected by his or her respective class. These representatives meet twice each month to discuss matters pertaining to the health and sanitary conditions of their particular rooms and of the school and community in general. Any measures of specific value in effecting better living conditions in the school are considered. Such details as proper ventilation and temperature, correct lighting, sanitation of class-rooms and wash-rooms are discussed. In addition to the consideration of local interests, a definite study of some phase of health is considered at each meeting. Such subjects as proper food, clothing, bathing and personal habits, safety and first-aid, etc., are discussed. Thus, each health officer or representative acquires a new perspective each week. He, in turn, imparts the knowledge gained to his respective class the following day at the regular class meeting. It follows that the individual student will, very often, be awakened to a keener interest in personal and social problems thus presented by his classmates than would be the case were

the same problems presented by the teacher.

He feels a sense of personal responsibility in keeping or helping to keep his room "one hundred per cent" sanitary and himself "one hundred per cent" healthy. The Student Board of Health functions best as a purely Democratic organization, conducted by the students themselves. However, the supervision of a faculty member is necessary to the success of the work. A teacher who has an earnest interest in the subject of health and the proper promotion of health habits should be appointed by the principal as the faculty advisor of the Student Health organization. Constant inspiration and interest on the part of this advisor is necessary to enthuse the student health officers and to promote the best interests of the Board.

Narcotic Drugs and the Penal Institutions

Significant reports have been submitted on the effect of the narcotic drug situation on the New York State penal institutions. The first of the statements was in the annual report of the New York State Prison Commission, submitted in February, 1922:

"The whole situation as to the handling and treatment of drug addicts in New York City is a deplorable one. The treatment of the addict as a criminal is certainly not effective, as is shown by the statements of repeaters: of the 'cures' effected by the Riker's Island institution, for example, 30 per cent were repeaters and 10 per cent returned for a third treatment during the year."

Included in the annual report is a special statement by Ernest S. Bishop, M.D., consulting physician of the New York State Prison Commission. Dr. Bishop acknowledges that the penal institutions have failed in their treatment of addicts, but says that they are not to be blamed. The care of non-criminal addicts is not properly their function; it is in the province of institutions other than penal. The failure of these other institutions to bear the burden has "tended to throw under an unfortunate criminal classification and into penal handling a large number of the non-criminal addicted, not only complicating the situation and problems in the penal institutions but engendering great sociologic and economic and personal problems."

The inadequacy of medical treatment is a serious matter, according to Dr. Bishop.

Organizing to Salvage the Mental and Nervous Derelict

The Mental Hygiene Movement Expresses the New Understanding of Social Maladjustments

BY JOSEPH SMITH, M.D., ATTENDING PSYCHIATRIST, BETH ISRAEL HOSPITAL, AND JACOB A. GOLDBERG, PH.D., DIRECTOR, COMMITTEE FOR HEALTH SERVICE AMONG JEWS, NEW YORK CITY.

PRESERVATION of the mental health of the individual is coming to be recognized as one of the most important functions of society. Unfortunately, to suffer from a disordered mind has been a stigma, and this stigma has spread even to those who concern themselves with the problem itself. This sentiment is still wide-spread and places enormous obstacles in the way of constructive work. It undoubtedly accounts for the reluctance of socially minded and philanthropically inclined men and women to support movements and organizations whose purpose it is to preserve mental health and to redeem the mentally ailing. Laymen still think of mental disorders as only those which are characterized by more or less actively antisocial behavior, rendering those afflicted a source of danger to themselves or to others. There is another group of mental disorders—less menacing in appearance, but of utmost importance to society—known technically as psychoneuroses, including hysteria, neurasthenia, psychasthenia and other less well defined types of psychopathic personality.

For the individual the problem of the preservation of mental health involves the selection of a mode of life appropriate to his particular abilities and handicaps, and the adjustment of the outlets for instinctive cravings to the limit set by a social manner of living. The development of the mental hygiene movement indicates the growth of a deeper insight into the causes and effects of mental maladjustments arising out of the complexity of modern life, including the whole field of education, in the home and school; the matter of re-

ligion, marriage, occupation and so forth. The total number of persons in the country who are suffering because of mental maladjustments cannot even be estimated with any degree of accuracy. We do know the number of such persons who are patients in state hospitals for the insane, but we can only vaguely guess

in need of medical attention. Together with these two items—the determination of a statistical average and the development of facilities—there would result a better understanding of the causes, of methods of treatment and social adjustments fundamental to the improvement of those mentally and nervously sick.

The Committee for Health Service among Jews functioning as the educational division of several organizations interested in health problems, has initiated a mental hygiene educational campaign among Jews, with the distribution of literature, lectures in synagogues, factories, lodges, schools, settlements, etc. In addition, diagnostic clinics have been opened and those applying are examined by a psychiatrist or neurologist and advised as to facilities for treatment, hospitalization, social adjustments, etc. Table 1 presents the diagnoses of 250 mental hygiene patients examined during the year of their activity.

The figures indicate that approximately 15 per cent of the patients were mental defectives, 15 per cent suffering from some psychosis, and the remaining 70 per cent psychoneurotics, epileptics, etc. Statistics of this kind gathered over a period of several years in different parts of the country would throw much light on the relative incidence of various forms of mental and nervous disorders.

While mental and nervous troubles may have their roots in early life, usually it is not until adulthood is reached that the problem of adjustment becomes so severe and trying that the patient and his family find it necessary to have recourse to special clinics and hospitals. Approxi-

Service to Redeem the Mentally Ailing

ANOMALIES of personality, whether temporary or permanent, are explainable through the experience of the individual. They are as often due to stupid handling as to inherent constitutional defect of the individual patient.

The mental hygiene movement seeks prevention, or at least amelioration, through industrial and social adjustment, and institutionalizes only the socially unadjustable. The stigma that has in the past retarded progress in this field has no place in the mental hygiene program.

The lack of physical or moral stamina, or of courage in the crises of life, instability, emotional unrest, and general inadequacy under ordinary conditions, are proper materials for professional consideration in the hands of the psychopathic clinic.

at the number of those included under the term psychoneurotic.

An intensive educational campaign over a period of several years would help to determine the incidence of these mental and nervous disturbances, at least within the confines of a selected number of communities. Concomitant with such a campaign there would have to be an increase in the arrangements for treating and hospitalizing such as might be found

TABLE I.—DIAGNOSIS

Diagnosis	No.
Mental deficiency	37
Constitutional psych. infer.	11
Involuntal melancholia	11
Dementia praecox	11
Manic depressive insanity	16
Dementia paralytica	2
Exhaustion psychosis	12
Traumatic psychosis	14
Epilepsy	24
Anxiety hysteria	2
Compulsion neurosis	2
Conversion hysteria	9
Occupation neurosis	1
Psychoneuroses (other forms)	80
Habit spasm	1
Chorea	2
Migraine	2
Stammering	1
Psychic impotence	1
Erfort syndrome	1
Paralysis agitans	2
Cerebral arteriosclerosis	13
Post-encephalitic depression	1
Neurosyphilis	3
Total	250

mately 50 per cent of the patients were between the ages of twenty and forty years, which would seem to bear out this conclusion. It is, of course, recognized that many forms of mental and nervous disturbances do not as a rule become aggravated until early adulthood, and that with the increasing death rate after forty years, there would come a decrease of the occurrence of these ailments. Nevertheless, the social significance is that the mentally and nervously ailing are found largely in the age groups which are considered the productive periods of life, and therefore, socially the most important and useful.

The 3 per cent immigration law has had its effect in limiting the number of recent arrivals who, suffering from mental and nervous ailments, apply to clinics for advice and treatment.

The nativity of the patients is in approximate agreement with the reports of the Immigrant Division of the Department of Labor over a period of years. Over 25 per cent of the patients were native born.

The occupations of the patients examined were representative of the trades and industries to which Jewish men and women turn for a livelihood, especially such as are found seeking medical advice and treatment in the clinics of the city.

The above data present the picture of a large portion of the patients who frequent dispensaries, clinics and hospitals, seeking in each place some panacea for their disturbed and troubled mental and nervous systems, and only infrequently finding the balm for which they look. This is not due altogether to the difficulty of the patients to adjust themselves, nor to any innate moral or other laxity on their part. Primarily, it is an indication of two things: the inability of medical

science alone to cope with many of the problems presented by the patients, and the lack and shortcomings of community facilities for the care and treatment of such patients.

Mental Hygiene and the Jew

It has long been recognized that there are mild mental cases which do not require commitment to a state hospital or to a sanatorium; this is similarly true of certain abnormalities of conduct among children and adults which may bear the seeds of a future psychosis. To cope with such conditions the State Hospital Commission has organized a number of out-patient clinics, placing them in different sections of the state.

The Jewish patient often presents a problem which requires special attention. By virtue of racial characteristics, tradition, difficulty of adjustment to a new environment, a language difficulty, the aversion to and fear of state or municipal hospitals, and other matters peculiar to the Jew, especially if he be of recent immigrant stock—for all of these reasons the Jew must be considered as a special problem if success is to attend the care and treatment of the mentally or nervously ill. The mental hygiene clinics of the state hospitals are as a rule shunned by Jews, and for this and other reasons clinics with Jewish psychiatrists and neurologists in attendance are apt to achieve a larger measure of success. The following case histories indicate what service it has been possible to render in mental hygiene clinics in which patients and doctors, as well as psychiatric social workers, were Jewish; also what further accessories are necessary to meet the problem of adequate mental hygiene care and treatment for large numbers of ailing Jews.

Case 1.—W. B., a young girl of nineteen came to this country from Russia with her family a few months ago. On the first day of her arrival in New York, following an argument with members of her family, she left the house, wandered about the streets and accosted a stranger to whom she complained that she was without a home and was penniless. She was directed to an organization interested in immigrants. There she related a story that she had been married in Russia, had no relatives in this country, etc. A few days later she was seen by a psychiatrist at her home. Her parents stated that since childhood she had been willful and disliked her family. She kept her face covered with her hands, answered questions evasively, expressed a desire to leave her home and take up nursing or some other occupation which would take her out of her environment. She was found to be obstinate, refused food

and would have nothing to do with her family, and thus presented a complicated problem. To send her to a hospital for observation would have meant her eventual commitment and deportation to Russia, where she had none of her family left. With the aid of a social service worker of the organization for immigrants she was placed in the care of a distant relative in New Jersey and an attempt was made to find a suitable position for her. In other words, the patient was met on her own ground and no violence was done to her personality. On the contrary, friendly relations were established and she is being guided and helped in the solution of a family conflict and a conduct disorder which had its inception in early life. For the past few weeks she has been regularly employed as a helper in a hospital.

Case 2.—Mrs. A. is a married woman of forty. She is intelligent, works hard, keeps her house neat, her children are well taken care of and she takes pride in her home life and her work. During the past eight years she has been subject to repeated attacks of depression and mild excitement. These attacks last a number of months. She becomes impatient, neglects her house work, is abrupt and rough in her manner, scolds and gets excited, leaves the house and runs into her neighbors' apartments or out on the street and walks about aimlessly. She becomes sexually excited, makes demands on her husband; feels ashamed of her conduct and is tortured by the consciousness that she is neglecting her children. She has been under care of a mental hygiene clinic for some years and due to the personal interest a psychiatric social worker has taken in her, it has been possible to lessen the severity of the attacks and to keep her fairly comfortable at home. The stigma of insanity which a commitment would entail, and the throwing of the household into a chaotic state with each outbreak, have been avoided.

Case 3.—A. G. is a patient seventeen years old. About a year ago he developed peculiar spells. From the description given by his parents and by a psychiatric social worker the attacks are unmistakably epileptic in character. Coincidentally there developed also a peculiarity of conduct—fretfulness and irritability. The patient became aggressive, fought his friends, became indolent, and lost confidence in himself. He has been discharged from several positions, principally because of his epileptic attacks. He was treated by many physicians but without appreciable result. His parents are greatly worried, have lost control of themselves and cannot manage the boy. He gets excited over trifles; had an altercation with a neighbor, broke several panes of glass and wanted to throw himself out of the window. On one occasion, after an argument with his father, he turned on the gas. At Bellevue Hospital, the father was advised to send him to Craig Colony, but he is unwilling to have him committed. This case presents a difficult situation; not only is there a serious organic affection which—(Continued on Page 560)

Significance of B.coli in Water in Relation to Health

To Demonstrate Contamination of Water Supplies is not Necessarily to Measure its Danger in Terms of Probable Infection

By W. H. FROST, M.D., UNITED STATES PUBLIC HEALTH SERVICE, WASHINGTON, D. C.

WHAT is known with reference to the significance of B.coli in water in relation to health is the result of so many years of cumulative experience that what can be added by one or two years more of observation can have very little effect upon the sum total. Consequently, anything that may be said properly representing opinion today is in most respects identical with what would have been said some years ago, since the last ten years have seen only one important addition to our knowledge, materially affecting opinion on this subject.

Sanitarians are interested in water supplies primarily as potential vehicles of infection. What they wish to know regarding a water supply is its danger, in terms of the proportion of consumers who will contract infection as a result of drinking it. A knowledge of the water in terms of bacteriology is of secondary interest to them, solely as a means toward the end of forming an estimate of the water's danger.

The facts upon which an interpretation of a bacteriological or chemical examination of water is based are relatively few and simple and are so generally known that they are repeated here merely by way of review.

The first fact of importance is that the real element of danger in a water supply is the pathogenic micro-organisms which it may contain. The second essential fact to be recognized is that we can not at present demonstrate these dangerous pathogenic micro-organisms in water by direct bacteriological processes, because they are present in such exceedingly small numbers as compared to other non-pathogenic organisms. To detect the typhoid bacillus, or other pathogenic bacteria, even in grossly polluted water, is a rare accident; and failure to detect them is by no means proof of their absence.

The third fact essential to the interpretation of any chemical or bacteriological examination of water is that all of the pathogenic micro-organisms which constitute a real danger in water are essentially parasitic, having their natural habitat and breeding places in the bodies of man and other higher animals. Outside of this environment they tend naturally to rapid decrease or extermination, and therefore they are found in nature only in association with comparatively fresh excreta. Moreover, the pathogens of most serious importance are found only in human excreta, not in the excreta of lower animals.

Therefore, since we can not directly demonstrate the pathogenic organisms which may be present in water, our next most specific test for their presence is demonstration of the presence of excreta, especially human excreta.

Evaluate Specific Tests

For many years, with this general principle in mind, chemists and bacteriologists have been working toward specific tests for excreta. The problem is, however, a difficult one, for, while the contamination resulting from a very small amount of fecal material added to pure water can readily be detected by either chemical or bacteriological tests, these tests do not prove that the contamination necessarily resulted from excreta. The most nearly specific chemical tests serve only to indicate broadly the kind and to measure roughly the amount of organic matter present. They do not differentiate between organic matter derived from sewage and that from less objectionable and entirely harmless sources. Similarly, the total numbers of bacteria as determined by gelatin or agar counts, may be taken as indicating roughly the amount of organic matter present which is suitable for the sustenance of bacteria; but, although large numbers of bacteria are present in excreta, equally large numbers may be found in other organic wastes. Consequently the demonstration of excessive numbers of bacteria in water,

taken by itself, does not indicate sewage contamination.

The most nearly specific test for excreta at present available is demonstration of the presence of the so-called "colon bacillus," since this organism is always present in large numbers in the excreta of human beings and higher animals. However, before this test can be considered absolutely specific, it is necessary to prove that the colon bacillus breeds naturally only in the bodies of man and other animals. It is upon this latter point that there has been and is considerable controversy; naturally, since such a proposition can be proved only by exclusion, and even an approximation to proof requires an enormous mass of negative experience.

Notwithstanding the impossibility of absolute proof, a large majority of sanitarians in this country familiar with the bacteriological examination of water would have stated quite positively ten years ago that the presence of colon bacilli as then defined was specific evidence of fecal contamination. They would have based this opinion upon their general experience that these organisms were ordinarily found only in water which was obviously subject to fecal contamination, and that the numbers of colon bacilli found were roughly proportional to the opportunity for direct and continuous exposure of the water to fecal contamination as shown by sanitary survey.

On the other hand, there was a very considerable and highly authoritative minority, especially strong in England and Germany, who held the opposite view that the colon bacillus, though always present in feces, was widely distributed in nature as a saprophyte, and that its presence did not necessarily indicate the presence of excreta. Their reason for this view was chiefly that a large number of studies had shown the presence of colon bacilli on grain, grasses, and fruit, and in soil where the probability of recent fecal contamination seemed extremely remote.—(Continued on Page 557)

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Editorials

AS a result of the conference called by Surgeon General Cumming somewhat more than a year ago, the subject of the training of sanitarians has lately occupied a very large share of the atten-

tion of health workers of the country. It is indeed well that we should give careful consideration to the importance of improving facilities for the training of health of-

ficers and that we should make every effort to stimulate the entrance into this field of the large number of men who are needed to fill it effectively. It is important, however, to remember that the health officer like the poet is born rather than made. We greatly need the right type of man but we do not need the wrong type; and THE NATION'S HEALTH plans to discuss with some frankness the question of the personality of the health officer during the next few months.

The first point to be remembered is that the health officer is an administrator, and an administrator of a peculiarly complex and exacting service. The scope of public health work is changing rapidly and the very first task of the officer is to choose wisely between conflicting demands for his attention and to balance judiciously the claims of old and new lines of endeavor. He must formulate for his own community, and in the light of local conditions and local psychology, a program which shall attain a maximum of results in life saving for the sum of money at his disposal. To do this requires a balanced judgment which education can develop but can not create.

When a sound health program is once formulated the next problem of the executive is to choose his staff with discrimination, to adjust their relative responsibilities and to give them the free hand that develops personality while keeping the machine as a whole in smooth and harmonious working order. He must understand the problems of the humblest inspector and be able to foster and stimulate that psychological approach by which even a minor official who comes in daily contact with the public accomplishes results without friction and builds up an atmosphere of public approval for the department which he represents. The health officer must comprehend something of the principles and practice of public

The Health Officer's Personality

health nursing and must be prepared to solve the complex claims of generalized and specialized service, instructive and bedside care, as applied to his own community. He must know how clinics should be organized so as to operate with efficiency while preserving an atmosphere of personal sympathy free from the deadly taint of institutionalism. He must understand the problems of the laboratory worker and the statistician. He must often assume responsibility for the administration of an isolation hospital and sometimes for the organization of a system of refuse disposal. Let the reader compare in his own mind the relative simplicity of the problems which must be solved by any other municipal department head in the whole range of city administration and he will realize how unique are the demands made upon the health officer.

It is obvious that a sound knowledge of the principles of public health science is essential to success in this difficult field and it is clear that theoretical instruction must be supplemented by a generous assignment of practical field work. Such training as is given in our best schools of public health will be of inestimable value in preparing the way for effective health administration. Yet such instruction will be wasted upon a student who does not possess that combination of broad vision and human sympathy and moral courage which makes for leadership.

THE Public Health Service for administrative purposes, has divided the Continental United States into seven Districts and placed a regional director in charge of each. The headquarters

of these seven districts are as follows: New York City, N. Y.; Chicago, Ill.; Denver, Col.; San Francisco, Calif.; Seattle, Wash.; New Orleans, La.; Baltimore, Md.

U. S. P. H. S. District Organization

This is a forward step in a very necessary decentralization, incident to the expansion of the service.

The quarantine functions of the service are police functions under very definite and detailed regulations, and the medical officer in charge of a quarantine station has little need for further instructions. Problems rarely arise which necessitate invoking a higher authority or making extraneous contacts.

The hospitals of the service are operated under a code of regulations equally definite and in such detail, that most questions can be decided by the officer in charge.

The sanitary police functions and hospital functions in themselves could be discharged without decentralization, but the burden on Washington, even in these functions, can be lessened by having district offices.

The service, in the newer conception of its duties and obligations as a national health service, has expanded far beyond sanitary police or quarantine duty and the administration of hospitals. It no longer simply operates quarantines and hospitals under police power and regulations sufficient within themselves, but today participates in the solution of all problems which affect the health of the nation.

In solving these problems police power has little part, their solution depends upon voluntary co-operation and the hearty support of all agencies, official and unofficial, interested in health.

Public health has expanded from the prevention of contagious disease to the prevention of all disease. It has gone further—from the negative prevention of disease to the positive idea of sound bodily health. With this expansion the National Public Health Service must keep pace and must go even further, showing leadership in health problems of national scope.

These district directors will serve as a point of contact with official and unofficial health agencies and with the general public, obviating the necessity of directing all health business through the neck of the bottle—Washington.

The directors of districts will not only serve to make a local point of contact for extra service agencies interested in health, but will be able to secure better coordination between the various service units themselves, quarantine, immigration, hospital—epidemic or research—within the area.

The district idea of decentralization has wonderful possibilities in providing the machinery for the coordination of official and unofficial or voluntary health effort with each other and with the National Public Health Service in nation-wide programs against disease.

JUST as the sanitarians of the world were beginning to think that yellow fever was an almost extinct disease, there came in March last, rumors that it had appeared in epidemic form in

Bucaramanga, Colombia.

There had been no reports of the disease elsewhere in Colombia; the seaports of Colombia and Venezuela were believed to be free of yellow

fever; the only cases in the Western Hemi-

Yellow Fever in Colombia

sphere where it was known to exist were Bahia, Brazil, and Tampico and Ciudad Victoria, Mexico; Bucaramanga was far in the interior of Colombia, many days travel from the seacoast; at an altitude of three thousand feet, an altitude not usually conducive to the spread of yellow fever; granted that the disease was yellow fever, it was a mystery how it could have penetrated to such a remote locality without leaving an epidemic trail behind it.

The Colombia government decided that the disease was not yellow fever; there were rumors that epidemic pneumonia had appeared among the laborers brought from the mountains for the completion of the railroad which is to connect Bucaramanga with Puerto Wilches on the Magdalena River; returning travelers told tales of an epidemic of black-water fever; the epidemic continued.

Finally on April 28 a commission acting under the aegis of the International Health Board left Colon for the scene of the epidemic. The chairman of this body was Assistant Surgeon General J. H. White, U. S. P. H. S.; the other members were Dr. O. L. Pothier of New Orleans, La., and Dr. Wenceslao Pareja, of Guayaquil, Ecuador. Since all of these physicians are recognized yellow fever experts any decision at which they might arrive as to the identity of the epidemic at Bucaramanga would be final as to its being or not being yellow fever. They took with them cultures of the *Leptospira* of yellow fever and Weil's disease in order that serological tests might be made. By mid-May the commission had confirmed the disease as yellow fever, had secured an appropriation of thirty thousand dollars from the Colombian government to combat the disease, and had established a four day quarantine at Tamboa, one day out from Bucaramanga, to prevent the extension of the disease into new territory. The diagnosis was made clinically and by the Pfeiffer cross reaction, and it was on the latter evidence that the Faculty of Medicine at Bogota (the capital of Colombia) was convinced of the absolute accuracy of the diagnosis. This test was also made with positive results on two active and two past cases, one moderate and one severe case in each group, both the Mexico and Guayaquil *Leptospira icteroides* strains being used. The accuracy of the diagnosis cannot be gainsaid.

Bucaramanga is three days from Puerto Wilches, which is the point of departure from the Magdalena River. It has a population of about 25,000 and is situated at an altitude of 3,000 feet; it is surrounded by the towns of Rio Negro, at 15,000 feet elevation, about 20 miles away, with 15,000 inhabitants; Florida Blanca, at 1,500 feet,

seven miles away, with a population of 5,000; and Giron, with 5,000 inhabitants, five miles away. The last three named towns are connected with Bucaramanga by good automobile roads. This is believed to be the third time that Bucaramanga has had yellow fever, and the last time it lasted two or three years.

It is thought that the disease entered Bucaramanga from Cucata, an uneradicated residual yellow fever focus for the past fifty years. Cucata is five days travel away to the north, and is situated at an altitude of 900 feet, close to the Venezuelan border. It has a population of 30,000, with about seventy thousand people around it, and it is a large trading center. Of the five days journey from Cucata to Bucaramanga, three days are over a *paramo* or plateau having an elevation of 10,000 feet, and it is thought that the disease was carried to Bucaramanga in this way. An infected person gets out to the edge of the *Paramo*—that is one day's journey—and infects the mosquitoes there; somebody from that point contracts the disease and is able to travel across the *paramo*—that is three days—and infect the mosquitoes on the other side; subsequently someone gets the disease at that point and carries it into Bucaramanga—one day's travel away.

The question arises as to whether or not Puerto Wilches (the port of Bucaramanga on the Magdalena River) is also infected. It is not thought to be infected now but it is believed that the disease has been there but has burned itself out. Has the disease spread down the river? This is not now known but those who have studied the situation locally are inclined to believe that it has not. Has the disease spread up the river? Probably it has spread to Berrios, where it is thought there are still a few cases, and perhaps to Medellin which is the end of the railroad which runs from Puerto Berrios.

The chief quarantine officer of the Panama Canal, Surgeon W. C. Rucker, U. S. P. H. S., on May 28, 1923, issued the following order for the protection of the Canal Zone:

On account of an outbreak of yellow fever at Bucaramanga, Colombia, quarantine against passengers not immune to yellow fever and from all Magdalena River ports above Barranquilla to complete six days from port of departure, is hereby imposed.

Boarding officers will take temperature of all non-immune passengers arriving from North Colombia ports, and those having fever will be placed in quarantine to complete six days from port of departure. Certification of ships' surgeons as to daily temperature of passengers en voyage will be accepted. The local addresses will be taken of all non-immune passengers landing and they will be required to report once daily to complete six days from port of departure to a quarantine officer to have their temperatures taken. Failure to so report will result in arrest and detention at the quarantine station.

Dr. White has returned to the United States and will direct the eradication campaign from Washington, D. C. All local operations will be directed by Dr. Frederick A. Miller of the International Health Board. Doctors Pothier and Pareja have proceeded to Cucuta via Curacao, D. W. I., and the Lake Maracaibo region of Venezuela. It is hoped and believed that the intensive measures which Dr. White has put in force will rapidly stamp out the epidemic and thus yellow fever will be still further driven into oblivion.

THE modern pessimist reading the numerous appeals for the handicapped adds one more count to his indictment of modern progress and concludes, sincerely no doubt, that the evils of society are on the increase. We are all, optimists and pessimists alike, prone to make such conclusions unless we view conditions in the perspective of time. We see the evils of the day and, without comparing with the past, conclude that the world grows worse.

It often happens that a new insight or an awakened conscience causes us to take up a problem which was no less a problem before, but which was left untouched. During the last five years we have learned much and done much about the salvaging of the human scrap heap. More data are at hand to show the distressful conditions of the handicapped. Knowing now about the evils, superficial observers and pessimists draw false conclusions. The conditions are probably no worse than they were; we are merely better informed. That which should be ground for optimism, namely, that we had been roused to action on an old problem, is used to prove the opposite. Yet here is the most hopeful social program that has been devised. It is not entirely new in theory, but almost entirely new in general social application. Medical and health agencies have been rehabilitating physically as a matter of course for many years, but only within the last five years has the social program of physical and vocational rehabilitation been coordinated for the remaking of men physically, economically, and socially.

The progress of this work as disclosed by the reports of the Federal Board for Vocational Education should encourage all believers in social progress. Nearly all of the states have joined in this cooperative enterprise with the Federal Government. Many thousand handicapped people are training the faculties which are left to them. Workmen's compensation commissions, education

departments, and medical men are cooperating to restore the injured workers to self support. The fact that large numbers of handicapped people are being discovered, does not mean that there are more than formerly; it means merely that the facts of our true condition is being discovered by our good efforts to cure one of the sorest spots on the social body.

It is to be hoped that this forward movement will be continued. The present provision for federal cooperation expires next year. The movement will go forward but haltingly if Federal support and stimulus are withdrawn.

ONE of the most important of the many valuable services rendered by the American Public Health Association has been the formulation of standard laboratory methods for the carrying out of various public health examinations. In one sense any standard procedure is abhorrent to science since "it is characteristic of science and progress that they continually open new fields to our vision."

Standard methods must necessarily be subject to repeated revision; but, on the other hand, for official administrative purposes it is absolutely essential to have some agreement among analysts in order that the results obtained in different places and by different observers may be reasonably comparable. The standard methods for the examination of water and sewage of the American Public Health Association have given us since 1905 an ideal compromise in the shape of authoritative procedure subject to change every few years to meet the advancing developments of science. During the present year the fifth edition of *Standard Methods for the Examination of Water and Sewage* and the fourth edition of *Standard Methods of Milk Analysis*¹ have both been issued and as before these documents will be found invaluable to every laboratory worker.

From the bacteriological standpoint the fifth edition of "Standard Methods" differs from the fourth (1920) in two important respects: the phenolphthalein method of titrating media is definitely abandoned in favor of the new and more exact phenol red adjustment; and the litmus lactose agar plate is abandoned in favor of the eosin-methylene blue agar medium, which is now recommended as the alternative to the Endo agar for the confirmation of *Bacterium coli*. The new

1. Both to be obtained from the American Public Health Association, 370 Seventh Ave., New York City.

milk standards differ little from those of the fourth edition except in establishing a ratio of 1-4 instead of 1-5 for the relation between the official plate method and the direct microscopic count and in the inclusion of methylene blue reduction test as a provisional method for detecting milk of poor quality.

It is exceedingly probable that important advances will be made and new changes indicated during the next few years. The use of various inhibitive dyes furnishes real promise of the possibility of a better presumptive test for *Bacterium coli* than has ever been devised in the past,² and it seems likely that in the future greater official recognition will be given to the distinction between *Bacterium coli* and *Bacterium aërogenes*.³ The new standard methods, however, represent the best knowledge of the time and they should be strictly followed by all who are engaged in the practical sanitary control of water and milk supplies.

THE report of the Chicago Department of Health for the years 1919, 1920 and 1921 is full of interest for the sanitarian. The material is presented in an exceptionally clear and com-

The Chicago Health Department

compact form, with a summary of results accomplished and recommendations for the future under each major division of health department activities.

The expenditures of the department for various functional activities are fully tabulated and it appears that the total appropriation for the department was increased from approximately \$.29 per capita in 1911 to \$.53 in 1921. Of the latter sum, less than \$.07 is spent for sanitation and the promotion of cleanliness and approximately \$.42 for the direct conservation of health. An unusually large place is occupied by the educational work of the department including an account of the health and sanitation exposition of 1920 and the pageant of progress of 1921. Under the general head of publicity and education is to be found an account of the eight weeks course in home nursing which in the opinion of competent experts has done more harm than good, by flooding the community with inadequately trained women some of whom pass as nurses and collect the fees which should be paid only to those of adequate training and experience.

2. C. E. A. Winslow and A. F. Dolloff: The Relative Effect of Certain Triphenylmethane Dyes Upon the Growth of Bacilli of the Colon Group in Lactose Broth and Lactose Bile. *Jour. of Infect. Dis.*, 1922, XXXI, 302.
3. M. Levine: Bacteria Fermenting Lactose and Their Significance in Water Analysis. *Iowa State College of Agriculture and Mechanic Arts Official Publication*, 1923, xx, No. 31, Bulletin 62.

The report of Dr. Herman Spaulding makes an urgent plea for the immunization of the preschool child against diphtheria and shows gratifying progress in the immunization of contacts, nearly 16,000 such persons having been immunized in 1921. With an increase in cases and carriers during the past three years the death rate has been kept at a low level. Smallpox, as in so many cities of the United States, is on the increase, but all the other acute communicable diseases show a satisfactory trend. It is interesting to note that fumigation was abandoned in favor of terminal disinfection in 1920. A very interesting new step was the creation in November, 1919, of a division of mental hygiene and neurology under the Department of Health. Special attention is also devoted to the problem of venereal disease control and Health Commissioner Robertson makes a vigorous plea for a more extended and systematic campaign along this line. Unusually aggressive investigations are reported as having been made to determine the prevalence of venereal disease in lodging houses and among the unemployed, among prostitutes, and among men admitted to penal institutions.

The report of Mr. Charles B. Ball, chief of the Bureau of Sanitation is of particular interest on account of a long and effective plea for the adoption of a comprehensive zoning plan. It is distinctly encouraging to see the health officials of a large city realizing the responsibilities in regard to such broader problems of community sanitation.

THIS is the season of the year to emphasize once more the possible dividends in health and comfort to be obtained by the artificial cooling of occupied buildings. We take it for granted

Why Not Keep Cool?

that we should keep our houses warm in winter and then accept the heat of summer as a dispensation of divine providence. Yet it is just as easy, though somewhat more costly, to cool a room in summer as to warm it in winter. The results of some years' experience in the Blackstone Hotel in Chicago, the banking offices of Kuhn, Loeb & Co., in New York, and the Mount Sinai Hospital in the same city¹ have demonstrated the feasibility of this procedure and it may be hoped that those who are suffering from high temperatures this August will give serious consideration to the possibilities of securing protection against such conditions in the future.

1. A. M. Feldman: Cooling Systems of Buildings. *American Society of Refrigerating Engineers' Journal*, March, 1922.

The Beccari System of Organic Waste Disposal

ITALY and, to some extent, European countries in general have long used the open manure pit and prized it as a most important adjunct to agriculture. The nitrogen loss from such a process of open fermentation is from 6 to 14 per cent and may rise even to 64 per cent if there is no protection from rain water. Dr. Guiseppe Beccari developed a closed fermentation cell with the idea of conserving the fertilizing value of manure. It was then found that garbage,

and eight by nine in plan. The walls are of brick, plastered with concrete on the inner sides. Around the interior of the cells are four horizontal baffles about two inches wide and spaced about two feet apart. In each corner of the cell is a vertical air passage having an opening into the cell at the lower side of each of the horizontal baffles. Three of these vertical ducts are open at the upper end. The fourth one is closed and above it is an opening in the roof of the cell. Cells

in the cell. In the bottom of the cell is slotted false bottom which serves to admit air drawn from openings in the outer walls and through which liquids are drained to a sump located underground; the overflow from the sump being connected with a sewer.

In operation the cell is charged with garbage through a trap door in the roof. Air enters through the ports below the false bottom circulates through the mass slowly, being retarded by the horizontal baffles on the wall. If the cell has been in operation for a little time, and the charge is seeded with liquid from the sump, in less than a week fermentation will be well under way and the temperature of the fermenting mass will rapidly rise to approximately 145 degrees Fahrenheit. The volatile products of the fermentation (nitrogen and ammonia) pass into the turret above the cell and liquid products drain back into the cell. At the end of thirty-five days the content of the cell is removed through a door in the side of the cell. The garbage is found to have been converted into a nearly dry inoffensive humus, dark brown in color, with practically no odor and, according to Italian investigators, with a high fertilizing value. Dr. Vittorio Racah, of Florence, in writing on this subject says, "numerous analysis of diversified samples of fertilizer (from Beccari plants located in Florence, Carrara, Pistoia, etc.) show that the average analysis of sweepings digested in Beccari cells is about as follows:



View of the 208 cell Beccari plant at Florence, Italy, showing units of cells with storage shed in the background

weeds, dead animals, and practically any kind of organic material could be fermented with success in such a closed cell. This discovery led to the construction in many cities of municipal disposal plants based on the Beccari principles of fermentation.

Six municipal plants were in operation in Italian cities in May, 1922, the largest of these being a 208 cell installation at Florence. At this same date one other plant was nearing completion and five cities including Naples had contracted for Beccari plants for the disposal of the city waste. Garbage disposal plans for Naples include three plants with a total of eight hundred cells. Rome, Milan, Messina, several other large cities and many small ones were negotiating for disposal plants. The Beccari system of garbage disposal is being introduced into the United States by the American Beccari Corporation of New York.

The construction and operation of the system can be made clear by a brief description of one of the cells. Such a cell is about ten feet in height

are usually built in groups of four so that when the four openings through the roof are located in the center of the group one tower is constructed over the four openings. In the tower are four horizontal shelves covered with layers of absorbent earth and sulphate of iron which function in fixing the volatile products resulting from the fermentation of the material



Approach to an Italian plant by which the garbage is hauled directly to the roof of the cells and dumped through the trap-doors in the top of the cells.

Nitrogen consists of 8 parts per M. phosphoric anhydrides 3.7 parts per M, while ordinary agricultural open manure pits, even the most modern and perfect, rarely produce a product containing more than 4.5 parts of nitrogen per M., and of phosphoric anhydrides 2.5 parts per M, according to analyses contained in agricultural treatises on the subject."

It must be remembered that in relation to garbage, these figures cannot be taken at their actual values for they represent the results obtained from street sweeping. They do, however show the conservation effected by fermentation in a Beccari cell. In view of the difference in conditions in Italy and the United States and the general skepticism with which American sanitarians are apt to look on any claims of financial returns from disposal works it is only fair to state that the officials of the American Beccari Corporation minimize the use of the humus as a fertilizer. 11 conditions in this country prove to be such that this angle of the disposal becomes profitable, well and good, but the backers of the Beccari process urge their fermentation process on the grounds of simplicity, efficiency and economy.

The cells are simple in construc-

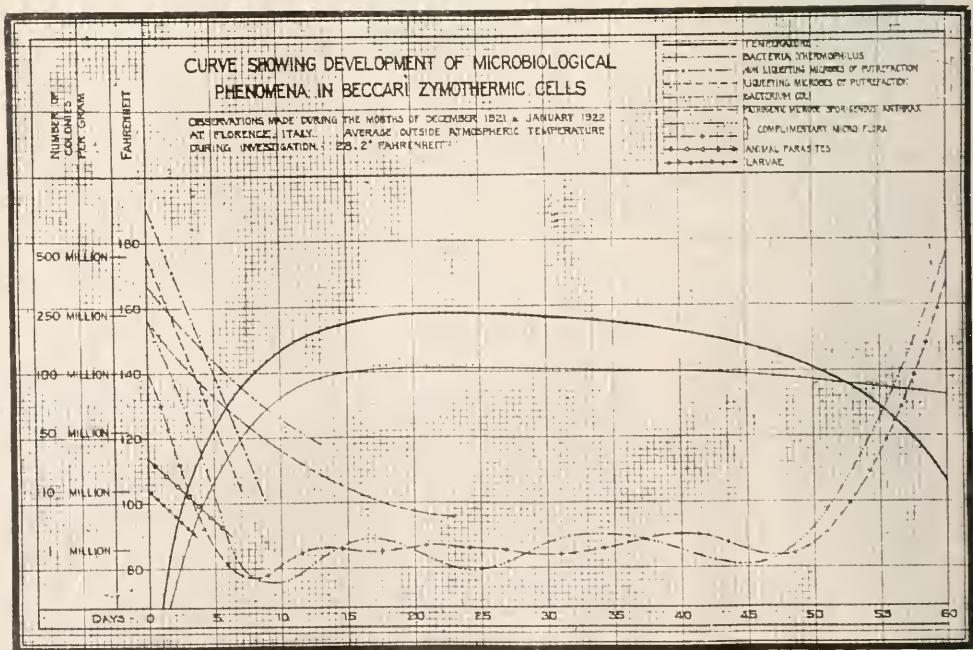
tion; after filling no care is required until the process of fermentation is completed; the product is well digested, free from odor, practically, sterile, can be dumped without creating a nuisance. There are no odors around the plant, and the cost of upkeep is slight.

A four-cell experimental plant is now in operation at Paterson, N. J. Naturally, some doubts were felt as to the success that could be attained with such a fermentation process in a climate differing considerable from that of Italy. The Paterson experimental cells were put to a severe test by being put in operation during the winter season. Located in an open wind-swept field they produced, during the winter months, a satisfactory product in a period approximating forty days, which indicates that the winters of the United States extended by somewhat less than a week the period required for digestion in the warmer climate of Italy.

Early in March of the present year a representative of THE NATION'S HEALTH visited the plant at Paterson. The day before this inspection one of the cells had been emptied and the humus spread on the ground nearby. Several inches of snow fell during the night and at the time of

inspection it was necessary to dig through this snow which had covered the humus for more than twelve hours. The humus was found to answer the description of the Italian investigators? It was dark brown in color, nearly dry, as inoffensive to handle as ordinary garden dirt and, a few inches below the surface, still warm in spite of the covering of snow. The cell from which the humus was removed had been charged with several whole hams and chickens. Search for remains of these revealed only clean bones and on breaking these the marrow was found dried to such a stage that it could be easily powdered with the fingers. In spite of the objection of the Italian that supervised the construction of these cells, they were charged with the typical garbage of the American city. The charge contained an occasional tin can, some paper, and wood shavings from the sweepings of slaughter house floors. Apparently this inorganic matter in not too excessive amounts has no influence on the progress of the fermentation process.

Practically no odor could be detected on the roof of the cells even with the doors of the turret open, and the odor in the interior of a partially di-



Graph showing the development of microbiological phenomena in Beccari zymothermic cells, taken from a biological study of the subject by Prof. Gustavo Gasperini, Director of the Florence Board of Hygiene.

gested cell was not extremely objectionable.

Visual inspection of the product produced by Beccari zymothermic cells created a very favorable impression. The desirable thing, of course, is to have a fair sized plant constructed in some city that a careful study of its operation can be made extending over a period of a year or more and using garbage of a composition typical of that collected in the municipalities of the United States. The experiments so far carried on a small plant during the winter months give no indication that any insurmountable difficulties would be encountered. Actual construction cost and annual operating expenses will be of great interest when they become available. It seems hard to conceive how they could even equal those of a reduction plant, as the fermentation cells are simple in construction; no machinery is required; the cost of upkeep will be limited to repairs; and the cost of operation is practically limited to the labor for charging and emptying. No attention is required throughout the thirty-five or forty day period fermentation.

What actually happens during the fermentation is not completely understood. Whereas the cells do produce a good product practically the only investigation of the way in which this is accomplished was conducted by Prof. Gustavo Gasperini, director of the Florence Board of Hygiene. The results shown in the accompanying graph were obtained in this study of the fermentation of sweeping from the paved streets of Florence. The bacteriological studies of the content of four cells show that as soon as the process begins actively the gelatin liquifying organisms decrease so that by the sixth or seventh day cultures made with dilutions equal to the original samples produce far less liquification.

"While the fluidizing colonies are on the decrease, colonies of thermophilous micro-organisms begin to make their appearance in the cultures in agar, which latter micro-organisms, which were almost entirely absent on

the first and second day, attain to their maximum development when the liquifying colonies have fallen to a minimum and the temperature rises to about 70 degrees Centigrade." Among the thermophilous micro-organisms Prof. Gasperini found some predominating species not previously described. To these are given the names *Bacillus thermophilous mucoramosus* and *Bacillus thermophilous trichovaginitus*. The species of the complementary microflora are, for the most part, chromogenic. One of the latter, described by Gasperini as "very singular" has been named *Bacillus polymorphotestaceus*.

Generally speaking, *B. coli* disappeared about the tenth day, but if samples were taken near the walls where the material was kept moist by the liquid trickling down the walls positive samples may be obtained under a condition such as this even after

mometer registered 59 degrees Centigrade and none of the animals inoculated died. After this the other two baskets were removed and the tassels subjected to cultural tests, but no colonies of anthrax could be found on agar.

Layers of moist fecal matter from cess-pools were placed in cells. Transformation in such matter proceeded more slowly probably because to their lesser permeability by air. *Ascaris lumbricoides* are destroyed by the process of fermentation and the embryos of *Ankylostomum duodenale*. Wherever ova of nemathelminthes were present in the fresh soil no trace of them could be detected after the third week.

These above are the finding of Prof. Gasperini. They indicate that from a sanitary and hygienic point of view the process of Beccari fermentation is satisfactory. It may be wondered what applicability there is in this country of the findings relative to the disposal of moist fecal matter. Small installations are recommended for camps and country estates. These may be used for the disposal of night soil, garbage, and other organic material.

The American Beccari Corpora-



Design by the American Beccari Corporation for a Beccari organic waste disposal plant for a city of 30,000 inhabitants.

three weeks or a month have elapsed.

Tests were also carried out with anthrax spores. Linen tassels soaked in cultures enriched with spores were placed in baskets containing self registering thermometers. These baskets were then packed with some of the same refuse that was used in charging the cell. Four of these baskets were buried in the charge at a depth of one half meter; one in the center of the cell and the others at varying distances from the wall. At the end of the eighth day the first basket was removed. The thermometer recorded 52 degrees Centigrade. The anthrax infected tassel was shaken in sterile water until the water became turbid and this liquid inoculated into two guinea pigs. One of these died on the third day and one on the fourth. Blood examinations showed anthrax to have been the cause of death. On the twenty-first day another basket was removed; the ther-

more estimates that one cell will care for the garbage of approximately one thousand population. An illustration shows the proposed design for a thirty-two cell plant, sufficient for a city of thirty thousand. The cells are arranged in two rows through the center of the plant. The ventilating turrets are arranged along the sides leaving a clear driveway through the center of the plant. By means of entrance and exit ramps the collection trucks along the top of the cells dumping the garbage through the trap-doors in the top of the cells. Along both sides of the cells are storage sheds where the humus is removed.

The reports from Italy and the preliminary experiments at Paterson promise well. What its actual applicability will be in the United States can only be told when some city ventures the construction of a fair size plant and operates it for a reasonable length of time.

Nineteenth Annual Meeting National Tuberculosis Association*

Not Natural Causes Only, But Purposeful Effort Must Be Credited With the Continuous Fall in the Death Rates From Tuberculosis

LOOKING back at the nineteenth annual meeting of the National Tuberculosis Association, recently closed at Santa Barbara, among the impressions which stand out most clearly are first of all, the determination of all those present to make the tuberculosis movement a bigger factor in the improvement of public health than ever before, conserving and forwarding the gains already made; secondly, a recognition clearly emphasized in a number of different ways that the conscious work of the national, state, and local tuberculosis associations has been productive of results in life saving and would, and could be productive of greater results in the future. The delightful setting of Santa Barbara, the splendid hospitality of our California hosts, and the good fellowship of those in attendance at the meeting, are among other impressions that will last for a long time.

It would take more than the space allowed for an ordinary article to attempt to recount all of the interesting features of the programs of the various sections. The most that can be done in this brief space is to tell of a few of the interesting features.

Dr. Lawrason Brown's presidential address struck a sympathetic cord when he reminded us that one of the greatest needs of the campaign against tuberculosis, is more extensive research for the purpose of securing a positive cure for the disease. "The long search and the scantiness of financial reward have discouraged many brilliant scientists from entering the tuberculosis field. A complete eradication of tuberculosis must follow along one of two lines. First, by vaccination or by some other method of treatment which is as successful as the administering of quinin in malaria must be discovered. Another possibility is that pulmonary tuberculosis like leprosy and typhus will gradually recede until in countries with a high hygienic civilization it will be of slight importance. At the

present time public education in disease prevention, increased sanatorium facilities, and adequate after care in order to prevent a relapse, are the best available means of still further reducing the mortality and case rates."

Prevention that Prevents

In the report of the executive office read by Dr. Linsly R. Williams, managing director, and more particularly in the first session of the sociological section, abundant evidence was presented to show not only that the death rate from tuberculosis has declined in a remarkable way during the last twenty years, but also that the reasons for the decline are to be found primarily in the work of the anti-tuberculosis campaign. To Dr. Louis I. Dublin belongs the credit for correctly demonstrating that the anti-tuberculosis campaign may justly say that it has accelerated the decline in the death rate. Dr. Dublin clearly pointed out that the constitutional school of thinkers are represented by Raymond Pearl, are not basing their conclusions on sound hypotheses when they say that the decline in the death rate is due to perfectly normal causes, entirely beyond control of ordinary human activities. Dr. Dublin clearly pointed out that the educational, institutional, case-finding, and general campaign for building resistance and preventing infection had contributed in no small measure to the cut in the death rate. Dr. Williams and Dr. Haven Emerson also pointed out that the recent studies of Dr. Charles Hendee Smith in one of the most congested districts of New York would seem to indicate that there is not only a decline in mortality and also in morbidity from tuberculosis, but a decline in infection as well. Dr. Smith's figures show that the evidence of infection in young children is very much less pronounced in the group which he studied than in the group studied in many large European cities.

In the clinical section much attention was given to methods of treatment that have been helpful in arresting tuberculous diseases. Artificial

pneumothorax was discussed directly or indirectly in eight or ten different papers. The evidence presented clearly indicated that this method of treatment is of proved value, not only in moderately advanced, but in relatively far advanced cases. Dr. W. D. Sansum, of the Santa Barbara Cottage Hospital, also contributed an interesting feature of the meeting when he pointed out that tuberculosis patients suffering with diabetes have been successfully treated by the use of insulin, coupled with the ordinary hygienic and dietetic treatment. The significance of Dr. Sansum's work will be found in a great many centers, particularly where there is a prevalence of diabetes in combination with tuberculosis.

The results of sanatorium treatment were also carefully scrutinized in several different ways, both in the American Sanatorium Association, which met the day before the opening of the National Association meeting proper, and in the Clinical and sociological sections. There seemed to be a certain difference of opinion as to the possible value of the sanatorium. Some of those present felt that the sanatorium's biggest work can be accomplished when used as an educational institution. Others, expressed a sharply opposed feeling that its chief function is to keep patients until well or restored to working efficiency. Dr. Dublin made an interesting contribution in this respect, when he pointed out that the actual saving of lives brought about by sanatorium treatment during the last fifteen years, which had in many instances doubled the expectancy of life by tuberculosis patients, had registered a very decided effect upon the reduction in tuberculosis mortality. The follow-up of sanatorium patients was also a subject of considerable discussion. The Association adopted a formal resolution for a continuation of the follow-up study made by Miss Whitney, statistician, begun about two years ago. In general the sanatorium, in spite of the criticism levied against it, seemed to come out of the discussion with its usefulness clearly

*We are indebted to Philip P. Jacobs, Ph.D., publicity director, National Tuberculosis Association, for the data contained in the above comment.

indicated and with its field of activity considerably enlarged.

Among the nurses present at the meeting, who were very well represented, the keenest discussion was aroused on the subject of training of pupil nurses. Miss Grace Holmes, of Portland, Ore., startled those present by pointing out that less than 10 per cent of the pupil nurses of this country who are graduating every year, get any knowledge at all of the care of the tuberculosis patients during their two or three years of training.

It is impossible to carry on this discussion of the several interesting features of the program in more detail. To say that the meeting was interesting and that the program was well planned and that the sessions were all enthusiastically attended, is stating in somewhat commonplace terms what are the real facts.

As to the business of the conference, the following directors were elected at the opening session:

Representative Directors.—Dr. John W. Flinn, Arizona; Dr. W. Jarvis Barlow, California; Dr. Ethan Allen Gray, Chicago; Dr. Stephen J. Maher, Connecticut; Dr. T. Z. Cason, Florida; Dr. William F. Smith, Idaho; Dr. F. E. Sampson, Iowa; Dr. A. T. McCormack, Kentucky; Dr. Martin F. Sloan, Maryland; Dr. J. H. Kellogg, Michigan; Dr. Henry Boswell, Mississippi; H. R. Cunningham, Montana; Mrs. John M. Fulton, Nevada; Dr. S. B. English, New Jersey; Dr. James Alex Miller, New York City; Dr. J. Grassick, North Dakota; Dr. R. H. Bishop, Jr., Ohio; Dr. Ray W. Matson, Oregon; Edward A. Wood, Pittsburgh; Rev. F. W. Gregg, South Carolina; Dr. Herbert Acuff, Tennessee; James H. Wallis, Utah; Dr. E. J. Rogers, Vermont; Dr. C. H. Barksdale, West Virginia; Dr. J. D. Shingle, Wyoming; and Dr. LeRoy Peters, New Mexico.

Directors at Large.—Wallace S. Allen, Connecticut; William G. Irwin, Indiana; Mrs. F. E. Whitley, Iowa; Henry S. Dennison, Massachusetts; Gertrude Vaile, Colorado; Homer Folks, New York; Lilla C. Wheeler, New York; Fred M. Stein, New York; Theodore S. Huntington, Ohio; Sherman C. Kingsley, Pennsylvania; Mathew Woll, Illinois; Dr. John H. Peck, Iowa; Dr. Ralph C. Matson, Oregon; Dr. Hoyt E. Dearholt, Wisconsin; Dr. W. Jarvis Barlow, California; Dr. A. M. Forster, Colorado; Dr. David R. Lyman, Connecticut; Dr. Max Biesenthal, Illinois; Dr. James A. Britton, Illinois; Dr. William DeKleine, Michigan; Dr. Lawra Brown, New York; Dr. Charles Stover, New York; Dr. A. C. Bachmeyer, Ohio; Dr. Robinson Bosworth, Minnesota; Dr. Paul A. Lewis, New Jersey.

The following officers of the Association were elected by the Board:

President: Dr. Livingston Farrand, president Cornell University; **Vice-presidents:** Dr. W. Jarvis Barlow, Los Angeles; and, Dr. Chas. J. Hatfield,

Philadelphia; **Honorary vice-presidents:** Hon. Warren G. Harding, and Col. George E. Bushnell; **Secretary:** Dr. George M. Kober, Washington, D. C.; **Treasurer:** Mr. Henry B. Platt, New York; **Executive Committee:** Dr. Jas. Alexander Miller, New York; Dr. David R. Lyman, Wallingford, Conn.; Dr. J. W. Pettit, Ottawa, Ill.; Dr. C. C. Browning, Los Angeles; Dr. A. M. Forster, Colorado Springs; and Mr. John A. Kingsbury, New York.

Conference of Secretaries

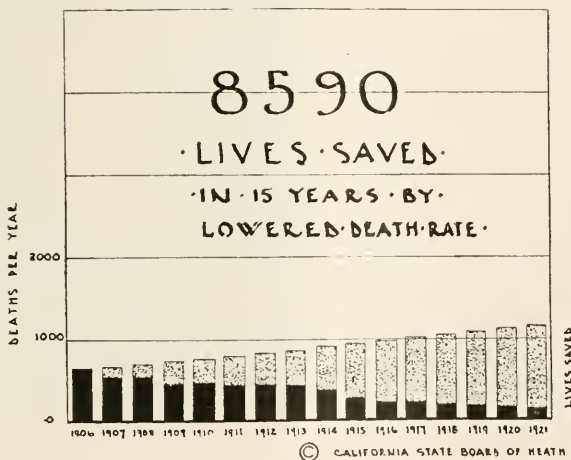
The National Conference of Tuberculosis Secretaries, which had existed for several years as an auxiliary of the Tuberculosis Association was reorganized and its membership limited to executive secretaries of state and local tuberculosis associations and heads of service of the National Tuberculosis Association. An executive committee of seven, consisting of

three state, three local, and one national representatives was elected. The committee is comprised of the following: Dr. Robert G. Paterson, Columbus, Ohio, Mrs. Sadie Orr-Dunbar, Portland, Ore., Mr. A. M. De-wees, Philadelphia, Pa., Mr. Hugo Brown, Buffalo, N. Y., Miss Sidney Maguire, Los Angeles, and Mr. Frederick D. Hopkins, of the National Tuberculosis Association.

This committee elected the following officers: Dr. Paterson, president; Miss Meyers, vice-president; and Mrs. Dunbar, secretary and treasurer.

Memphis was selected as the next place of meeting, the meeting to be held during the latter part of April, or early part of May, 1924. Section chairmen will be selected in the near future by the new executive committee.

CALIFORNIA HEALTH PROGRESS



The Twenty-seventh Biennial Report of the State Board of Health of California which covers the period from July 1, 1920 to June 30, 1922 contains encouraging reports of progress along many health lines. Smallpox, however, shows a steady increase in California and the problem of rat and squirrel plague continues to be serious. The experts who are dealing with the latter problem now recommend that efforts should be concentrated on the destruction of the squirrels in the immediate neighborhood of the towns, villages, and rural habitations rather than to attempt a more widespread eradication over wide areas. Rabies has also been on the increase in California during recent years.

On the other hand, the typhoid

death rate has shown a gratifying reduction well illustrated in the chart which is reproduced herewith. Infant mortality rates are astoundingly low. For the six large coast cities (San Francisco, Los Angeles, Oakland, Portland, Seattle, and Spokane) the infant mortality rates for the six years 1916-1921 have in no single year and for no single city been as high as 80. In 1921 three of these cities San Francisco, Portland, and Seattle had rates below 50.

Among special problems which have received particular attention from the California Board of Health there may be mentioned the sanitation of automobile camp grounds, fair grounds, and roadside camps, for all of which excellent sanitary regulations are in force.

Meeting of the American Medical Association—1923

The Obligation of the Physician to Translate and Transfer the Sciences Into Everyday Health for the Masses Is Clearly Felt

TRENDS and tendencies can be seen and traced in professions as in human growth, or in the incidence of disease, even if opinions are not susceptible of statistical expression.

There can be no question that the spirit of the modern physician as presented for his fellows and exhibited to his patients is shown in these annual gatherings, even if those who attend number but 6 per cent of the enrolled membership of the organized doctors of the land, and but 3.5 per cent of the registered practitioners of medicine.

This is the public forum where the physician, whether delegated to express the policy determined upon by his county and state society, or offering the results of his own personal studies and experience to the critical discussion of his fellow practitioners, speaks, as it were, in public and takes the consequences.

What were the policies proposed, what the action of the officers and delegates, what did science or its application gain from the San Francisco meeting of the American Medical Association?

Expression Made on Cancer

The session may be said to have opened with the Sunday evening public meeting on cancer, where the president and the president-elect recorded their belief in the efficacy of education of the public and their testimony as to the constant progress of science in simplifying the essentials of self-protection. The veteran campaigner, Dr. Bloodgood, capitalized all his hard won experience as a clinician in arousing the interest and directing the determination of the audience to take warning in time and use the skill of the surgeon with courage. It was hardly to be doubted that San Francisco would welcome such direct authoritative teaching if for no other reason than that this city with its cancer death rate of 162 per 100,000 in 1922 takes the leadership of the country (U. S. rate is 90) and is followed closely by Sacramento and Los Angeles in this unusual eminence.

Monday, June 25, gave the first opportunity to judge of the subjects and programs which the House of Delegates would be called upon to consider, and in some measure their attitude expressed in the discussions raised by the reports of officers and the presentation of resolutions.



Dr. W. A. Pusey, president-elect of the American Medical Association. Dr. Pusey graduated from the New York University Medical College in 1888, and has been practicing in Chicago since 1892. He is professor emeritus of the Department of Dermatology of the University of Illinois.

Dr. De Schweinitz in his address reiterated the well considered policies of the Association in matters of education, paying particular attention to the standards to be required for acknowledged specialists in the clinical branches and urging still ampler facilities throughout the country for the reeducation or continuation of training of physicians whose work keeps them usually apart from centers of medical teaching.

The chief topics of Dr. Wilbur's address were the need of long distance policies for the future and the necessity of promoting medical examinations of healthy persons as a safeguard against most of the preventable

defects and diseases. He spoke from a point of vantage rarely reached by the president drawn immediately from medical practice. He was looking upon the American Medical Association from without, from the academic heights and with the perspective of those who guide international health undertakings. He spoke with the apt and homely allusions of the experienced family practitioner, with the wise simplicity of the consultant. Before the House of Delegates and again at the opening meeting of the Association, Dr. Wilbur made clear the call on the one hand for high standards and broad scope in the training of physicians and on the other their obligation to translate and transfer the sciences into the daily lives of their patients, both the well and the sick.

"The attitude of the medical profession used to be," he said, "Don't come to the doctor unless you are sick. The object of modern medicine is to take the normal man and serve as a shield to protect his body from the diseases that would attack it. . . . Modern medicine tends more and more to emphasize the preventive rather than the curative."

Dr. Wilbur stated that "the opportunity before the organization was almost beyond parallel, and that it was in possession of a knowledge that if applied to the fullest extent to human need and human development it would afford untold happiness to humanity." He went on to say:

Our growing youth need instruction in health matters. They need not only to know life for their own protection, but to protect the lives that will depend upon them as they grow to maturity. Our greatest service to the human race can be done only when we help to make possible a marked increase in positive health. Already our efforts are crowned with a marked prolongation of life, particularly through the economic productive period. We can free human beings from many of the things that bring them down before the race is run. As a race our success is dependent upon the strong and the reproduction of the strong. In the control of the human

germ plasm lies man's future. In this great field we have not as yet even reached the amateur stage.

We hear much of the melting pot and of Americanization, but how many of our citizens realize that good minds and sound bodies can come only from those with these qualifications. Since all who come to our shores are permanently added to our American stock, to see that we are protected against the diseased, the feeble-minded and the criminal, we need to keep out the diseased as well as the diseases. Great possibilities are before us. When we can keep the Spirochaete of syphilis out of the body of every newborn babe we shall have added enough to human life and happiness to heal the wounds of the great war.

Reports of Councils

The Bureau of Legal Medicine and Legislation reported upon its first year of work which has been largely devoted to pressing the reasonable demands of the medical profession for consideration in the operation of the laws restricting the use of narcotics and alcohol. It seems likely that requests for issuance of whisky, bottled in bond in packages of such size as will permit dispensing without breaking bulk, direct to patients on physicians' prescriptions, will be met by favorable action by the prohibition commissioner.

Efforts have been made to obtain from Washington the courtesy of notice to the medical profession prior to any contemplated change in regulations.

Again the plea made at the Boston meeting in 1921 is vigorously endorsed, namely the request that the annual registry tax under the Harrison Anti Narcotic Law be reduced from \$3.00 to \$1.00 as it was before the war.

Perhaps the most constructive activity of this new Bureau has been the preparation of a bill which would require all those applying to state licensing boards for the privilege of treating the sick by any method or school, to have passed examinations in the basic medical sciences, such examinations to be held by a non medical board. Such a bill has been proposed and was defeated by the non-medical cults in Maine, Minnesota and Wisconsin. Ultimately the public will have to protect itself against fraud and incompetence of service to the sick in some such way as is proposed by the American Medical Association.

The Secretary's report emphasized the growing leadership of county Medical Societies in operating diagnostic clinics, providing post graduate instruction for their members, organ-

izing free clinics for the indigent, running health columns in the daily papers, and affiliating with other agencies for improvement of public health.

Health Instruction

During the year the chief accomplishments of the Council on Health and Public Instruction have been the launching of *Hygeia* under the leadership of Dr. Victor C. Vaughan, the chairman of the council and editor-in-chief of the journal.

The completion of the model state anti-narcotic law as authorized in 1921 permits the turning over of this part of the Council's work to the Bureau of Legal Medicine and Legislation. This text was made the basis of a new law passed in New York state and signed by the Governor. The general support of the other professions and of the trades concerned, for this model law makes its extended adoption probable.

The recent publication of standard procedure and forms for a complete history and medical examination of healthy persons fulfills the obligation imposed by the House of Delegates last year.

The Council on Medical Education and Hospitals rendered an admirable report.

Briefly, they advise more freedom in the use of hours required within major groups of instruction in the standard curriculum. They find the situation as to the medical schools and of students satisfactory, with 17,700 students enrolled, the largest number since 1912, of whom 90 per cent have the higher educational qualifications, while but 6.2 per cent were so prepared in 1904. They are convinced that there is no shortage of doctors and will be none as far as one can see ahead. There is now one M.D. to every 724 of our population. They believe that the relative lack of physicians in some rural areas can best be met by a guarantee of \$2,500 to \$3,000 a year to the physician from the community concerned. They call attention to the New Hampshire law permitting a town to pay for a physician from tax money if one can not be obtained otherwise. The telephone, the automobile and the great increase in use of hospitals have radically altered the distribution of physicians. The Council estimate that between 80 and 90 per cent of all sickness can be adequately cared for by competent general practitioners and that 90 per cent of the sick can be well cared for in their homes. It is obvious, however, from the extent of hospitaliza-

tion that the laity think otherwise and are constantly increasing their demands for hospital care, especially for maternity cases.

There are found to be 3,671 internships in 654 approved hospitals with 187,314 beds (one intern for 51 beds) and 3,944 dispensaries serving eight million persons annually. Abuse of medical charity is believed to be held down to a reasonable minimum. A good word is said of some of the group clinics which are found to maintain high standards both in the treatment of patients and ethically in relation to the profession.

The report of the subcommittee on nursing was endorsed, its recommendations quoted, and a committee called for, representing the medical and nursing professions and the laity, to agree upon a standard nursing curriculum and a classification of nursing training schools according to the quality of their educational work. Dr. William Darrach, of New York, Dr. Winford Smith of Baltimore, and Dr. Thomas McCrae of Philadelphia, are to be the medical members of such a joint committee.

The House of Delegates took important action on a number of matters of considerable interest to the public and the medical profession. They passed a resolution condemning the present commercial distribution of lye in packages for household use and called for national restrictions to prevent the blindness and damage to the throat, etc., which occurs commonly from ignorance of the nature of lye. They approved of participation by the American Medical Association in health exhibits when these are initiated or approved by the local county or state Medical Society. This will perhaps bring to a close the commercial activities of at least one group of promoters who have succeeded in exploiting both the public and the medical profession to their own profit.

They passed a resolution approving of a campaign of education of physicians by the American Medical Association in the methods and results of periodic medical examinations of apparently healthy persons, this to be carried out through state and county societies and through hospitals and medical schools. Unless something of this kind is done the public, now eagerly following the advice of the national health agencies to have such annual examinations, will find the medical profession largely unprepared.

They approved of a declaration

that "No need now exists for the entrance of the American Red Cross into the field work of public health activities or into community clinic work."

A committee was approved to continue conference with President Harding and his representatives relative to plans for the formation of a national welfare department in the Presidential Cabinet.

The request of the U. S. Veterans' Bureau to be accorded official representation in the deliberations of the American Medical Association was quite properly denied, as would be a similar request from the Pension Office.

The only controversial matter before the House was settled in an entirely suitable manner. The policy of the Bureau of Legal Medicine and Legislation in attempting to correct the tendency of existing regulations of the Prohibition Commissioner and to secure the purity of such liquor as is dispensed on physicians' prescriptions, was clearly endorsed. Other resolutions designed to endorse private groups of physicians in legal action, to demand unlimited usage of alcoholic liquor by patients on physicians' prescriptions, etc., upon the presumption that a majority vote of the medical profession has established alcohol as a necessary and valuable therapeutic agent, were properly tabled.

It would be a task worthy of the excellent work of the Council on Pharmacy and of the entire resources of the American Medical Association to make a scientific study, clinical as well as laboratory, of the therapeutic action and effect of alcohol in disease. Until this is done the American Medical Association should make no more official statements which can be interpreted as giving comfort to one or other of the groups seeking nowadays to make political capital out of what is essentially a scientific and social problem worthy of our best educational and research efforts.

Chicago is to be the next meeting place, and Dr. William H. Pusey of Chicago the next president.

Mortality Improvement Among Insured Negro Population

The colored people have finally awakened to the importance of the health problem, says Dr. Louis I. Dublin, in *Opportunity*, April, 1923. They have actually determined to profit from the opportunity to reduce the unnecessary loss of life from which they have suffered.

These conclusions are based upon the very extensive experience of the Metropolitan Life Insurance Company among colored people during the last decade and more. At the present time, there are insured in the Industrial Department of this company over one million eight hundred thousand colored persons. These include both males and females of all ages from the beginning of the second year of life, engaged in every conceivable occupation and distributed over virtually every state of the Union. For the most part, these colored policy holders reside in the towns and cities of the country. The experience is really an urban one; yet, the number of these colored policy holders is so very large that we may well expect them to reflect the actual mortality conditions that prevail among all the colored people of the United States.

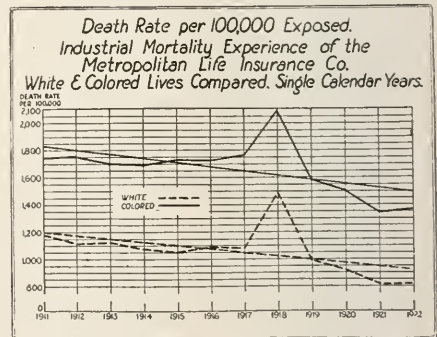
The Metropolitan experience is available in great detail for the year 1911 and for every year thereafter up to and including 1922. In these twelve years, the mortality of the colored policy holders declined from a rate of 17.5 to 13.6 per 1,000, which represents a drop of 22 per cent, or more than one-fifth. A very gratifying improvement, even if not quite so marked, occurred among the colored people living in the registration states of the United States, among whom the mortality rate declined 12.5 per cent between 1910 and 1920. In New York City proper, the decline among the colored people was actually 24.3 per cent. These improvements when translated in terms of longevity mean that colored males insured in the Metropolitan have in the short interval of about ten years increased their life span by nearly six years and colored females by nearly five years. It must be remembered that the public health movement among Negroes is only of very recent origin and the full effect of the work will not be felt for years to come.

In 1911 tuberculosis was responsible for 418 deaths for each one hundred thousand colored persons insured in the Metropolitan. In 1922 that rate was 244, or 42 per cent less. During the last ten years the typhoid rate among the colored declined 75.8 per cent. The decline

in malarial fever was almost identical with that for typhoid fever. The mortality for children under 15 years of age has improved 47.5 per cent.

Cancer shows an increase of 19 per cent; diabetes, 79.7 per cent; cerebral hemorrhage, 28.1 per cent; and organic diseases of the heart, 6 per cent. "These four conditions combined account for 27 per cent of the total mortality of colored policy holders, and it is therefore, discouraging to find that such important conditions are not on the mend but are actually getting worse."

There has been a very marked increase in the mortality from syphilis during the period of this experience. In 1922 the death rate from syphilis, locomotor ataxia, and general paralysis of the insane was 42.9 per 100,000. This is more than double the rate of 1911. It may well be that some of the increase is the result of franker and better reporting of these diseases by physicians,



but it is to be doubted if this is sufficient to explain the increase of 110 per cent, especially when during the same period, the syphilis rate for the whites declined from 9.6 to 9.5. The fact still remains that the rate for colored persons is close to five times as high as for whites.

"Both white and colored people can profit from more frequent physical examination and from following the advice and instruction of skilled physicians in the mode of life which is called for where serious impairments are found."

The New York State Y. M. C. A. has created a new department of physical education in connection with its work, Archie J. Stearns, formerly in charge of the health and recreation department of the Bronx Union Y. M. C. A., will assume its direction August 15.

Conference of American Federation for the Hard of Hearing

THE hard of hearing constitute a neglected group. The health officer concerns himself with communicable disease in its early stages, but collects no data regarding the resulting handicaps in individual cases; incipient deafness goes unrecognized in its curable stages; retarded children, lacking but one sense, are continually being classified as of low mentality; residual hearing is not capitalized in special methods of training to overcome character defects which are ultimately the chief penalty of deafness; and for the child who becomes deafened at the age of seven or eight years, after his training as a hearing individual is well under way, is, to all practical effect in reaching the great mass of the afflicted, educational opportunity is lacking in this country.

The Annual Conference of the American Federation of Organizations for the Hard of Hearing, which met in Chicago, June 18 to 20, dealt with the educational problems of the hard of hearing, with social measures to ameliorate their condition of isolation, with deafness as an industrial handicap, and especially with the psychology of the deaf. Dr. Max A. Goldstein was particularly drastic in his criticism of methods of education which had any objective other than to train the deafened person, to place dependence upon any mechanical aid to the detriment of lip reading, for here, as in other groups, self-reliance grows with free and easy communication and whatever tends to isolation serves as a mental handicap. Deafened children, therefore, are subjects for special training to overcome barriers to communication, and are to be classified on the basis of residual hearing. Lip reading is essential for all persons who cannot hear a whisper at a distance of six or eight feet, and speech is to be developed or conserved in every case. The deaf child requires the consideration of the community, but so far his best hope has been in the direction of voluntary agencies, a hope which is the better grounded under present co-operative effort between the Society of Progressive Oral Advocates, the national societies of teachers for the deaf, and the American Federation of Organizations for the Hard of Hearing.

Dr. James Kerr Love, of Glasgow, Scotland, received the hearing due to the man who first originated lip reading classes for adult deaf persons and whose intelligent appreciation of deafness as a handicap has resulted in his classical advice to mothers of deaf children and in general acceptance that sense education of the deaf must begin earlier than the school age for normal children. Dr. Love spoke of the impossibility of classifying the "queer hearing" of the deaf as one-half, one-third, or one-fourth efficient. From the standpoint of the deafened, classification is better made on the basis of residual hearing than upon etiology of the condition. Medical inspection in schools should assure the radical treatment of all cases requiring special attention to the nose and throat. Infectious cases should be followed until cleared up. School medical service may even be considered inadequate until it can mean even hospital treatment where that means cure or prevention of the condition of deafness from the clinical side. Educationally, the deaf require special treatment. Every large city requires special classes for all affected children. Rural communities should consolidate for such work.

Interesting questions are involved in the cost of such special education, especially in the cost of training the backward deaf, a group in which perhaps 15 per cent requires eight or nine years of special training. Is it worth it? Whatever the decision, the adult deaf must never be discouraged in the effort to attain means of getting on with other people.

On the subject of tests, Dr. Love declared for the use of the human voice, for the educability of a deaf person and the method employed depend upon the degree of auditory sense useful in general communication. Residual hearing, of course, should be utilized to the utmost in training and in speech conservation.

Many interesting communications were made on the psychology of deafness. Social work to break down their isolation was discussed in the paper of Earle E. Eubank, and a particularly hopeful prospect of release from this handicap was offered through psychiatric methods by Dr. Earl A. Menninger, and "deliberate

deafness," through mental acceptance of the limitations of the handicap was the message of Dr. Gordon Berry.

Dr. Harry E. Mock reported on the highly constructive rehabilitation service effectual in Chicago for these handicapped. The final test of service to this group is to find the way and means to give them a place in commercial and social activities. This is in a fair way to constructive effort through industrial surveys, vocational studies and vocational training, and coordination of all agencies.

Sewage Disposal Situation in Philadelphia

By an ordinance approved July, 1907, the Philadelphia Department of Public Works was authorized to investigate and report upon a plan of sewage disposal to meet the requirements of the local situation. It was not until August, 1915, that the State Commissioner of Health approved the city's plan. The city was instructed to have in operation before July 1, 1917, the facilities involved in the first stage of the plan for collection and treatment of sewage in the Frankford Creek section.

Land has been purchased for two of the three proposed sewage treatment plants and the collecting sewers involved in the first stage of the plan have been completed according to statements appearing in *Citizen's Business*, February 8, 1923, published by the Bureau of Municipal Research. The initial units of the northeast works are still incomplete. Among other reasons causing this delay were the unusual conditions existing during and immediately following the world war.

Under date of December 13, 1921, in a letter to the mayor and council, the State Commissioner of Health urged the expediting of construction work and called attention to the greatly increased pollution of the Delaware river. This very polite warning from the Commissioner prompted the city to order "full speed ahead" on the northeast works.

The city is now worried over a decision of the city solicitor that the unappropriated balance of the estimated cost (\$29,075,000) should be considered an encumbrance on the city's borrowing capacity.

First International Health Education Conference

Health Formerly "Happened" to the Lucky Ones; Through the Adaption of Definite Curricula It Now Becomes An Educational Objective

THE First International Health Education Conference was held at San Francisco, June 28 to July 6, as a section of the World Conference on Education. This Health Conference was called in the name of four great national groups: the American Medical Association, the National Education Association, the American School Hygiene Association, and the American Child Health Association.

As the American Medical Association and the National Education Association convened in San Francisco at the same time, it was possible to secure as speakers the foremost physicians, educators, and public health leaders. Such authorities in medicine and science were represented as Dr. E. V. McCollum, Dr. Alonzo E. Taylor, Dr. Haven Emerson, Dr. William Palmer Lucas, Dr. Thomas D. Wood, Dr. Guy S. Milberry, Prof. C. E. Turner, and Dr. Bird Baldwin.

Internationality Assured

The international character of the conference is assured by the fact that official delegates came from twenty-four countries, including India, Indo China, Italy, Japan, Mexico, New Zealand, Norway, Peru, Scotland, Denmark, France, Hawaii, Spain, Switzerland, Turkey, Uruguay, Belgium, Canada, Chile, China, Costa Rica, Czecho, Armenia, and Poland.

From America such varied professional groups were represented on the program as the National Committee for Mental Hygiene, the League of Red Cross Societies, American Social Hygiene Association, National Health Council, American Home Economics Association, American Physical Education Association, American Playgrounds and Recreation Association, National Y. W. C. A., National Women's Christian Temperance Union, National Tuberculosis Association, Girl Scouts of America, and Boy Scouts of America.

Two main problems were discussed at the Conference—the health education of the child in the school and training the student in teacher-training centers to teach health. Every angle of these two problems were covered by leaders in pedagogy; nutri-

tion, physical education, home economics, school nursing, school medical and dental work, and school administration.

It is only five years ago that the Child Health Organization of America, now the Health Education Division of the American Child Health Association, launched a nation-wide campaign to interest teachers in the training of children in the practice of health habits. The public first became aware of this movement through weighing and measuring contests, health poster contests, health play, hot school lunches, mid-morning milk, and monthly weighing and measuring. These activities were usually initiated and administered by groups outside of the school and were later taken over by the school authorities.

Health-Habit Teaching

Then parents and physicians began to hear of the fine health-habit teaching of an individual teacher or perhaps of a whole school staff. The next step was the placing of health teaching on the school curriculum through the work of a special department, such as that of physical education, domestic science, or science.

Then health education came into its own in some of the foremost school systems of America. Courses of study in health were developed which called upon every subject in the curriculum to make its contribution for arousing and maintaining the child's vivid interest in the fulness of living which is both the means and goal of health.

Into these courses of study has gone the brilliant originality of hundreds of classroom teachers, in the footsteps of whose experimental work the rank and file may safely follow.

And, not content to stop with the child in the school, groups outside the school are carrying creative methods of health education into every type of after-school activity for children of school age, and into recreational work for young men and women.

Out of this First International Conference there will come who knows what further vision, what wider practice?

Iowa Legislation Proposes Sanitary Code for Hotels

A whole code of new sanitary regulations for Iowa hotels and restaurants is proposed in bills introduced in the lower house of the Iowa legislature by Representative Yenter. Under these measures hotels would be required to provide 96-inch bed sheets, could not force patrons to sleep on straw mattresses, could not have quilts on the beds, could not use cracked dishes in the dining rooms, and would be forced to provide at least 400 cubic feet of air space for each person sleeping in its bedrooms. Cooks would be prohibited from smoking in restaurant kitchens, diseased persons could not be permitted to work there, uncovered pies would be barred, and cats could not be allowed inside.

Closing in on Yellow Fever

"Definite progress was made during 1922 in the International Health Board's campaign to drive yellow fever from the world," says President George E. Vincent. "The comparatively small number of reported cases of the disease were confined to Mexico, to a restricted area in northern Brazil, to points on the West Coast of Africa, or to ships en route from one of these countries. The Mexican authorities warmly welcomed and supported the co-operation of the Board. To one familiar with the history of yellow fever, the fact that for a whole year Central America, the West Indies, and all but one country of South America were free from the scourge which for nearly two centuries ravaged these regions, is strikingly significant. It is hard to realize that this latest phase of the fight on yellow fever began only five years ago . . . It is too early to predict a complete victory, but the successors of General Gorgas share his faith that it will in time be won."

The people of this country spend \$500,000,000 a year on drugs in addition to other large sums for other means of obtaining relief from suffering and sickness.

Advance in Health Safeguards for Working Children

Twenty-two states now require the physical examination of every child applying for an employment certificate, according to the newly revised edition of a bulletin on "Physical Standards for Working Children," issued by the U. S. Department of Labor through the Children's Bureau. The bulletin contains the recommendations of a committee of physicians who were appointed by the Bureau to prepare a standard form for use in examination of children seeking to enter employment.

Since the publication of the first edition of the bulletin, two years ago, a considerable number of changes have been made in the various state laws with reference to such examinations, and the summary of legal provisions which it contains has now been brought up to date. One state, Virginia, is said to have advanced in this respect to a stage beyond that of other states, in that it now requires the examination of every working child at regular intervals during the years when he is especially susceptible to the strains of industry. It should thus be possible to determine whether the work at which he is engaged is injuring his health or interfering with his normal development. In certain other states a child must be re-examined when he goes from one employer to another, but since he may remain with his first employer until he passes the certificate age, the bulletin points out that this is not so adequate a provision as the new Virginia law.

In addition to the twenty-two states requiring a physical examination for every child before an employment certificate is first granted, eight others and the District of Columbia allow the certificate-issuing officer to require an

examination when he is in doubt as to the child's physical fitness, but many officers, it is said, do not realize the importance of this phase of their work. In eighteen states there is still no legal provision of any kind for physical examination of the child worker in these states, even when the child first enters employment.

involved the rise of another: caisson disease (known among the men as "the bends," and among physicians as "air-embolism") is concomitant with the use of compressed air. Among the 600 men who were employed in sinking the foundations for the St. Louis Bridge some years ago, there were 119 serious cases of caisson disease, fourteen of which were fatal. In building the original Brooklyn Bridge 110 men were similarly affected and three of them died.

According to the survey in *The Travelers Standard*, the great progress of New York City in combating the disease has been brought about largely by enactment of special laws for protecting the caisson workers. Only a few states have laws governing work in compressed air, and New York, New Jersey, and Pennsylvania are the only ones having legislative measures that definitely regulate the hours of labor and specify the hygienic conditions under which caisson work is permissible.

Persons working in air under abnormally high pressure may contract caisson disease in consequence of remaining exposed to the compressed air for too long a time, or of being subjected to a change in pressure that is too rapid to allow the human machinery to adjust itself. In order to avoid injurious effects, the change in pressure must be made gradually by means of what are known as "air-

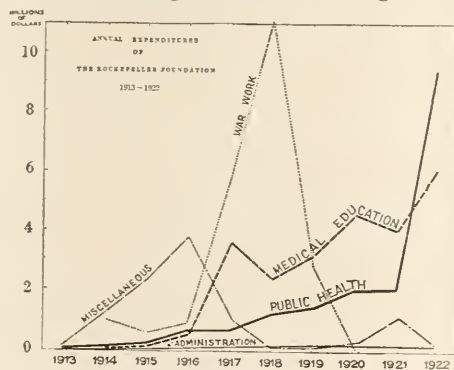
locks," chambers which may be put in communication either with the interior of the caisson or with the outside air.

Every applicant should receive a careful medical examination before being employed, and these examinations should be repeated at least as often as once every three months. It is essential for every man to have normal lungs and kidneys and a good heart, and a high blood pressure should disqualify the applicant.

Expenditures of the Rockefeller Foundation

THE Rockefeller Foundation was chartered by special act of the New York State Legislature on May 14, 1913. The following statement of contributions and programs during the first decade of its existence is made by Edwin R. Embree, the Secretary.

While its chartered purpose is broadly stated as "the well-being of mankind throughout the



world," the work of the Foundation has become chiefly centered upon public health and medical education.

The expenditures during the first decade, 1913 through 1922, have amounted to seventy-six and three quarters millions (\$76,757,040), roughly divided as follows:

Public health	\$18,188,838
Medical education	24,716,859
War relief	22,298,541
All other philanthropic work	10,445,628
Administration	1,107,174

Methods of Combating Caisson Disease

The United States Bureau of Mines calls attention to the fact that through the use of compressed air there has been a remarkable reduction, in recent years, in the dangers and discomforts to which workmen are exposed while engaged in underground work. Unfortunately, however, the elimination of one evil has

The Occupational Progress of Women

An interpretation of census statistics of women in gainful occupations is the basis of a report by Mary Anderson of the Women's Bureau, Department of Labor, just issued. The most striking change taking place in the employment of women during the last decade seems to have been in the decrease in the numbers working in or for the home and in personal-service occupations, and a corresponding increase in clerical and allied occupations, in teaching, and in nursing. Significant changes took place as well in manufacturing and mechanical industries. Increases of more than ten thousand women were found among semi-skilled operatives in food, iron and steel, and clothing industries, in silk and knitting mills; in electrical supply, shoe, and cigar and tobacco factories; among laborers in cotton mills; and among forewomen and overseers in manufacturing plants. Operatives in automobile factories showed an increase of 1,408 per cent in women workers; the entire iron and steel industry, 145.4 per cent. All occupations studied showed an interesting situation of disproportionate increase of women as compared to the increase in the number of men employed in the industries. Women in public service increased 60.6 per cent, and in certain professions the number of women was trebled.

More and more industrial opportunities are being offered to women. It is easier to explain the increased number of women employed in given occupations than it is to find the reason for the variations in increase of employment of men in the same industries. In twelve occupations studied the percentage of increase for women was more than one hundred points higher than that shown for men in the same occupation. No one is surprised that men decreased in number while women increased as clerks in stores, as school teachers, as trained nurses, and as stenographers and typists; but why should men actors and showmen decrease 1,475 during this decade and women in the same profession increase 1,254? Why did the number of men authors, editors, and reporters decline 382 in ten years and women increase 2,497 during the same period. It is even less explicable to learn that male cooks increased 12,853 and general servants 11,292, when the reductions in these two classes among women runs into the hundreds of thousands.

Interesting health angles attach to

these shifts of occupation. Industrial working conditions are man-made and it remains to be seen what far reaching effects the almost universal entrance of women into the trades will have upon public health. There are in addition the considerations which arise in hazardous occupations. Many of the positions which women have entered during the last decade are necessarily classed as skilled trades, but involve the peculiar occupational hazards of diseases caused by metal dust and fillings, chemical, or other specific dangers.

Universal Gas Mask Has Been Developed

Development of a "Universal gas mask" which is considered to have the widest application of any gas mask thus far devised, and which fills every demand that may reasonably be made on a gas mask, was recently announced by the Department of the Interior as the result of experimental work performed by the Bureau of Mines at its Pittsburgh, Pa., station. The Department also announces the development of a "Fireman's canister" which is similar to the "Universal canister," but is smaller and lighter, thus making it more convenient for the use of city firemen. The Army gas mask gives no protection against ammonia gas used in refrigerating plants, or against carbon monoxid, a constituent of blast-furnace gas, producer gas, water gas, and coal gas.

To combine efficiently in one canister the absorbents for all noxious gases is difficult because the absorbents for certain gases are best when moist, whereas an absorbent or catalyst for carbon monoxid can be used only when perfectly dry. Hence it becomes necessary to use dry absorbents for the other gases.

After an extended series of experiments by the Bureau of Mines the "Universal" gas mask was developed. The canister contains granular absorbents, consisting of activated charcoal, for removing organic vapors; a filter of cotton wool for removing smokes, dusts, and mists; caustic soda fused on pumice stone for removing acid gases; another cotton-wool filter; fused calcium chlorid for extracting water vapor that inhibits action of the next absorbent; "hopealite," a mixture of oxids of manganese and copper with sometime silver and cobalt that destroys carbon monoxid; and finally silica gel for absorbing ammonia. The complete mask and harness weigh about 8.5 pounds. The "Fireman's

canister" weighs about 5.5 pounds and is more convenient to wear than the "Universal" mask.

The Universal and the fireman's gas masks may be worn in air containing small quantities of any noxious gas. An abundance of air is necessary, because the gas mask does not furnish the wearer with any of the oxygen necessary for life. An atmosphere in which a safety-lamp flame goes out must never be entered by a man wearing a gas mask. Oxygen breathing apparatus or air helmets only can be used in such places. Because of the danger from using an exhausted canister, a limit of six hours' use is put upon the universal and four hours' on the fireman's canisters.

In cool or cold weather the canisters should be worn under a coat because when warm they are more active against carbon monoxid than when they are cold.

Details regarding these gas masks are given in Technical Paper 300, by S. H. Katz, J. J. Bloomfield, and A. C. Fieldner, copies of which may be obtained from the Bureau of Mines, Washington, D. C.

British Empire Cancer Campaign

A new concerted movement called the British Empire Cancer Campaign, governed and directed by an executive council whose members will serve as chairman of working committees, each directed against some separate aspect of the cancer problem, has been organized. Medicine, surgery, human pathology, chemistry, physics, radiology, animal and plant pathology, hygiene, and vital statistics will all be represented. Individuals and institutions now working on the problem will be encouraged and helped financially where necessary. Discovery in any one branch will promptly be made known to all.

Correction

The report of the extent and cost of care of chronic disabled heart patients in the hospitals, dispensaries, and convalescent homes in New York City, prepared by Haven Emerson, chairman of the executive committee of the Association for the Prevention and Relief of Heart Disease, Inc., and published in the June issue of *THE NATION'S HEALTH*, was based upon material collected by Miss M. L. Woughter, executive secretary of the organization. The article should have been printed as a joint contribution from Dr. Emerson and Miss Woughter.

Contract Medical Service in Lumbering

We are indebted to Dr. L. J. Stauffer for the following description of the divided medical contract under which the Rose Lake Lumber Company of Rose Lake, Idaho, provides medical services for its employees.

The medical work of the saw mill and planing mill, both of which are in Rose Lake is handled by a resident physician at Rose Lake. The logging operations are carried on in the woods at points about thirty miles up the Coeur d'Alene River. This part of the medical work can be handled better from Coeur d'Alene and is carried on by the Coeur d'Alene Hospital Association of Coeur d'Alene, Idaho.

There are about two hundred employees in the village of Rose Lake when the mill is running two shifts of eight hours each. The medical work is handled on the contract system. One dollar is deducted from each employee's wages each month to which the company adds 50 per cent on its own account. For a period of less than one month a deduction of ten cents per day is made. This provides for medical, surgical, and hospital attention; accident and illness included, that is, illness not existing at the time the employee went to work for the company.

By law the medical services rendered are at all times under the supervision of the Idaho Industrial Accident Board.

The physician is furnished with a combined residence and office which is located near the plant. The hospital service, when necessary, is rendered by hospitals in neighboring towns, Kellogg being twenty miles east and Harrison twenty miles west, and with exceptional train service in both directions.

The medical service provided does not cover the families of the employees.

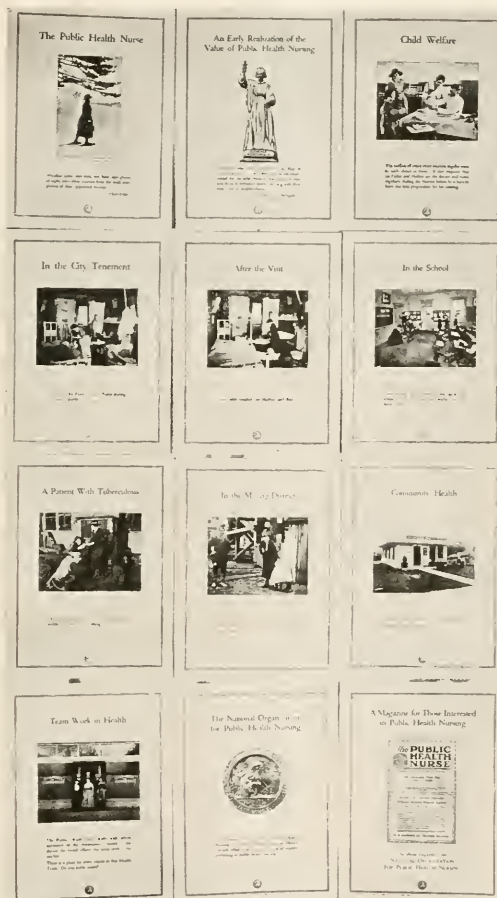
Disinfection of Tableware in Public Establishments

Drs. L. H. Dejust and Wilbaux Dardel of Paris have been carrying on extensive research in the subject of pathogenic bacteria on table utensils and the method of disinfection. Dr. Dejust has shown that the drying of dishes with a towel is not to be recommended, since, as a rule, the same towel is used to dry a large number of dishes before it is discarded. There results an enrichment of bacteria, which, after twenty or more operations, renders the towel capable of

contaminating sterile objects with which it comes in contact.

Toward the use of concentrated solutions of strong acids, Dr. Dejust is almost equally opposed, as the action of the acids on metal is dele-

rious. The sole solution of the problem seems to be in the use of boiling water. Glassware may be easily replaced with receptacles sterilizable by heat—metal cups or vessels of faience and porcelain.



Public Health Nursing Exhibit

Because there has been a constantly increasing desire on the part of the public to procure a real understanding of public health nursing a new poster series of twelve cards has been published by the National Organization for Public Health Nursing. This series describes by means of photographs and explanatory text the various phases of this profession. The cards are buff color and are nine by twelve inches in dimensions; they treat such topics as Child Welfare, Tuberculosis Nursing,

Industrial Nursing, Rural Nursing, Nursing in the city tenement, and School Nursing. Particular stress is laid on the fact that the Public Health Nurse is one of the teachers of community health and perforce must act as interpreter of health laws in terms of everyday hygiene.

The series is known as "Public Health Nursing Exhibit" and may be purchased by schools or others interested from the National Organization for Public Health Nursing, 370 Seventh Avenue, New York, N. Y.

Bathtubs Not Always Considered a Necessity

When bathtubs were first installed in the United States in the forties, they were attacked through the papers as extravagant and undemocratic, and were denounced by the doctors as a menace to health. As usual, governmental aid was sought and special taxes and licenses restricted their use. In 1843 Virginia put a tax of thirty dollars a year on bathtubs, and in 1845 a Boston municipal ordinance made such bathing unlawful except on medical advice.—*Science Service.*

Summary of Water Waste in Large Cities

The May issue of *The American City* presents a summarization of reports of surveys on water waste in many cities which is highly illuminative. In some cities the wastage runs as high as 21 per cent of the total output. In every case the results more than justified the cost of the survey which was counted a "profitable expense."

Outline of Progress in Hygiene

There is now available a history of the activities and organization of the Bureau of Labor Statistics of the U. S. Department of Labor. The volume, compiled by Gustavus A. Weber,

member of the staff of the Institute for Government Research, and published as Bulletin No. 319 of the department of labor, is a valuable brochure and the chronological list of publications presented under Appendix C practically constitutes an outline history of progress in industrial hygiene.

New and Effective Method of Cleaning Sewers

Apparatus in the form of a self-propelling nozzle for cleaning sewers has been devised. The machine, described in the current issue of *The American City* is a simple, easily operated tool which travels from the manhole to the obstructing roots or sticks under its own power and it is claimed that upon reaching the obstruction the revolving blade cuts away the matted mass of roots or sticks up to an inch in diameter. The water which revolves the root cutter washes away the loosened fibers, roots, and sticks, and gives the obstructed point a good cleaning.

Large Sum for Public Protection

The *American City* reports on the basis of a survey conducted by S. W. Straus & Co., New York City, that ninety-two cities plan to expend in 1923 more than \$260,000,000 for schools, police, fire, and various other administration buildings. More than a

score of other appropriations pending will bring the total for 120 cities to \$350,000,000. This is exclusive of the sums to be expended in these same cities by the Federal government.

Messenger Boys Enlist for Drill

Western Union messenger boys in New York City have been organized into a military unit and are being drilled by regular army officers. The Western Union company proposes by this method to command better service, concomitant with the increased physical strength and mental alertness of the boys.

The first drills began several weeks ago at the main building, where the boys go after their day's work and learn how to march, drill, and exercise. The work is a combination of army and Boy Scout methods. In addition to the military drill, which is expected to improve their bearing on the street, the boys are taught that their uniform is worth taking care of, that cleanliness is next to godliness, and that no regular soldier smokes on duty.

Lest these attractions fail to make the proper appeal the Western Union will establish a summer camp this year, at which every boy will have two weeks' vacation. If the plan is successful it will be extended to every city where there are a large number of Western Union employees.



Architecturally pleasing is the children's unit of the Detroit Municipal Tuberculosis Sanatorium. Its capacity is one hundred beds. The unit has been in active use since its completion in the summer of 1922.

LATE HEALTH DECISIONS IN THE COURTS

By DOROTHY KETCHAM, UNIVERSITY HOSPITAL, ANN ARBOR, MICH.

THE Industrial Commission is without power to make the payment of compensation payable on the applicant's submission to an operation for hernia pursuant to a stipulation agreed on by the insurer and the majority of the Commission. The findings must state whether or not the injury received is compensable under the statute or the reasonable rules adopted by the Commission and applicable to such cases, making its award accordingly.—*Broton v. Industrial Commission*, 210 Pac. 982.

THE Supreme Judicial Court of Massachusetts, May 19, 1922, upheld the authority of the Board of Health to require the denaturing of "rot" or "spot" eggs. It was urged that the defendant was compelled to break eggs before selling them for manufacturing purposes, that the regulation destroyed a well known commercial product, and deprived the defendant of property without due process of law. It was undisputed that the eggs were decomposed spot and black rot eggs, unfit for food and no denaturant had been applied. The defendant company dealt in eggs in all stages of decay. The court states that a "regulative measure may require precautions to avoid possible danger, as well as to restrict conditions actually harmful."—*Commonwealth v. E. E. Wilson Co.*, 135 N.E. 376.

AN INJURY blinding a one-eyed employee was held compensable as a total "permanent loss" of both eyes by the Supreme Court of Illinois, June 21, 1922. In the opinion of the Court "it is now a well-established rule in this state and other states, that where an employee, who previous to his employment has lost an eye, loses the other eye as the result of an injury, or who has lost an arm, and loses a leg as a result of an injury arising out of and in the course of his employment, he is entitled to compensation for total permanent disability."—*Heaps v. Industrial Commission*, 135 N.E. 742.

APRIL 10, 1922 the Supreme Court of Pennsylvania decided that an injury occurring before the hours of service is compensable as one "arising out of and in the course of employment." The facts of the case are stated briefly: Peter Carlin was employed as a night watchman, his hours being from 6 p. m. to 7 a. m. About three o'clock in the afternoon of March 27, 1919, he went from his home to the colliery where he received his weekly wages; "afterwards, in the neighborhood of 5 o'clock, while walking to a shanty used in connection with his employment, he was caught and injured between a coal car and a breaker foundation. . . . Carlin died June 5, 1919. The fractured ribs were on the left side, but his death was due to an abscess on the right; though the wound on the left side healed, he was never well after he received the injury. The abscess was discovered about five or six weeks after the accident and he died a few days after it was located. The causal connection between the abscess and the injury to the left side was shown by medical evidence to such an extent that we could not say the board or the court below committed error in holding it sufficient on which to base a finding that deceased died as a result of injuries received in the cause of employment. The testimony deduced from the related facts gave rise to the medical conclusion that the abscess followed as a direct result of the injury."—*Carlin v. Cox Bros. & Co., Inc.* 117 A. 405.

THE Supreme Judicial Court of Washington, August 31, 1922, upheld the constitutionality of the labor department to declare any occupation to be extra-hazardous. The law provides that the department may, after hearing, on its own motion or on application of any person interested, declare any occupation to be extra-hazardous. The department in this case had power to declare the employees of a retail coal yard to be in an extra-hazardous occupation.—*State v. Bayles* 279 Pac. 20.

THE Supreme Judicial Court of Maine, October 4, 1922, held that in the following case the accident caused death by accelerating a previous disorder and is compensable. The employee in question was a blacksmith who came from the main shop at the company's mill to do horseshoeing and other work at different camps in the wood whenever his services were needed. While riding the employer's horse from his home near the mill to a nearby camp, the horse reared and bucked, threw the rider, dragging him a few feet. "Witnesses say that the horse in turning to make for the stable, stepped upon the prostrate man's back." Lachonee walked home, started out again on another horse and on arrival in camp reported the occurrence to the foreman. This day he worked. The next he did not, complaining of a pain in his leg and of heart trouble. The doctor's examination showed him to be "generally lame, bruised in the left leg, and with a special pain in his side." He returned to work for two or three weeks but the lameness increased. In February he was dismissed by the foreman as "all gone." Ultimately he died at the hospital April 3, 1921, the cause of his death being given as asystole.

The court held that the requirement of notice had been regarded and that although the heart disease was chronic "if Lachonee, but for the hurt, would not have died at the time at which, and in the way in which he did die, then, within the meaning of the Workmen's Act, the unfortunate occurrence, though it merely hastened a deep-seated disorder to destiny, must be held to have resulted in an injury causing death."—*Lachonee's Case*, 118 Atla. 370.

THE Supreme Court of Utah, November 24, 1922, passed upon the finding of the Industrial Commission that an accident accelerated the chronic disease of the heart from which the individual suffered and of which he died. The Court states that the finding of the Commission must be supported by some substantial testimony or "reasonable conclusions, legally deducible from facts proved." The physicians' statements as exemplified are, "that this condition was going to develop in Mr. Salisbury, no matter what he did. Now the accident may have precipitated it a little sooner, but as to say definitely whether it did or not I wouldn't be able to say that for sure."—*Chief Consol. Mining Co. v. Salisbury*, 210 Pac. 929.

SANITARY AND HYGIENIC ADVANCE

Causation of Industrial Accidents

H. M. Vernon in discussing the status of present knowledge regarding the causation of industrial accidents (*J. Indust. Hyg. Med.*, 1923, v. 1, p. 14) is led to conclude that fatigue may cause a moderate increase of accident frequency when the hours of work are long; that accidents are at a minimum at 67 degrees Fahrenheit; and that probably fatigue has very little to do with the considerable increase of accidents which is generally observed during the course of work spells. The rise is due chiefly to the psychical state of the workers.

This latter point is illustrated by the experience in a shell factory employing both day and night shifts. The accident rate of the day shift was at a maximum in the second spell of work and fell rapidly in the third, while the night shift accidents with one exception fell fairly steadily the whole night through. The day workers started work in the early morning when in a depressed condition, that they brightened up gradually especially after their tea and food at 9 a.m. and that they got into a more and more lively and careless state of mind as their dinner hour approached. The night shift workers, however, came to work in a lively and excited state, but gradually calmed down during the night as they had nothing to look forward to except an unexciting breakfast and bed.

Wholesale Killing of Rats in Hawaii

"Lives and fortunes are at stake in a tremendous war against field rats now being conducted by the territorial board of health and the sugar plantations of the Hawaiian Islands" (*Science*, lvi, 1459, Dec. 15, 1922). Aside from a damage to sugar cane in excess of one hundred thousand dollars a year, there is the ever present danger of bubonic plague. Twelve deaths have occurred during the last twelve months on the Hamakua coast.

The new method for the wholesale killing of rats, now being tried out on the Honakaa plantation, consists in spreading poison cakes broadcast

through more than ten thousand acres of cane fields and waste areas. This has resulted in such a reduction of the rat population that where the board of health previously trapped more than two thousand rats a month, it now catches only about fifty. The poison used is barium carbonate. This is mixed with flour dough and made into small round cakes and coated with paraffin, which protects them from dampness and molding.

A man on horseback, dropping a rat cake about every ten feet, can cover an area of thirty-five acres in a day, at a total cost of about sixteen cents per acre. This procedure, repeated two or three times a year is sufficient to control thoroughly this very serious pest.

Water-Borne Typhoid Outbreak

A severe tax on the capacity of a "lake" storing spring water for the supply of Cochrane, Ont., resulted in a depression of the water level three feet below that in a connecting lake which was badly polluted. The normal direction of flow was reversed and polluted water entered the town supply. The possibility of some such accident had previously been discussed by the municipality and a by-law passed providing for the expenditure of a considerable sum for further developments. Unfortunately the town did not proceed with that work nor with the purchase of a chlorin apparatus which was also recommended.

At the time of reporting by Dallyn (*Eng. News-Record*, April 19, 1923, 90, 16, p. 711) the outbreak had reached some 600 cases with twenty deaths. There were sixty emergency nurses in town and seven extra doctors attending to the sick.

Valuable Fuel Manufactured from Household Refuse

Sheffield (England) turns its rate payers' refuse into fuel and sells same for five dollars a ton. Two incinerators of the "top feed" type treat household refuse, after it has been handled by a screening plant and its various constituents separated so they can be economically utilized.

As shown by the screening process

the composition of household refuse is: Dust 33.3 per cent; fine cinder, 27.1 per cent; large cinder 18.5 per cent; debris, 14.37 per cent; tins, 1 per cent; tags, 0.4 per cent; paper 3.6 per cent; and vegetable matter 3.73 per cent.

The larger cinder forms a valuable fuel which is used for steam raising purposes at the corporation baths in the city. The results of the plant have been so satisfactory that new works are being constructed that have a capacity of 120 tons of briquettes a day, in addition to dealing with many tons of large cinders.

Organism of Bovine Tuberculosis Identified

Gordon and Brown identified the organism of bovine tuberculosis in ten out of thirty cases of tuberculosis in children under twelve years of age. Among the twenty-three cases under five years of age the organism was bovine in six instances; among the seven cases between five and sixteen years of age four were of bovine type. Of the twenty-two fatal cases, four were of bovine type. Twelve necropsies were performed. In all cases in which the point of origin was the alimentary tract the organism was bovine without exception. The human type of bacillus was recovered from all cases having a respiratory point of origin. (*Am. J. Dis. Child.*, March, 1923, xxv, 3, p. 234.)

Phthisis Mortality

The supplement to the 75th annual report of the Registrar General for England and Wales, Part IV, Mortality of Men in Certain Occupations, divides stone-mason class into those employed on sandstone, those employed on limestone, and those employed on granite. The comparative mortality for the sandstone workers was 415, for the limestone group 129, and for the granite group 127. (*Lancet*, March 3, 1923, 1, 5192, p. 453.)

Novel Bath Tub

An ingenious gypsy made a temporary infant's bath tub by arranging an automobile curtain in a soap box when the nurse could find no basin large enough for the purpose. (*P. H. Nurse*, Feb., 1923.)

A new ruling of the United States Bureau of Chemistry officially forbids the return of spoiled canned foods by distributors to the sources from which they were obtained, stating that the shippers of such foods will be liable to criminal prosecution.

Vaccination by Mouth Commands Attention

Considerable attention was devoted to the subject of vaccination by mouth in the discussions of the Health Committee of the League of Nations at Geneva. The Calmette vaccine against dysentery is being extensively administered in this way in Greece and in Russia, and favorable results have been obtained with vaccines against dysentery, cholera, and typhoid fever. The report of the Provisional Epidemic Commission of the Health Section of the League of Nations recognizes administration by mouth as an optional method of vaccinating against all these diseases.

Hydrogen Ion Concentrations and Flocc in Alum Solutions

In a study of the relation of pH to the formation of flocc in alum solutions Theriault and Clark (*Pub. Health. Rep., Feb. 2, 1923, xxxviii, 5, p. 181.*) have attempted to elucidate one of the many little-understood phases of water purification. The results are summarized as follows:

The hydrogen ion concentration of the final mixture of water and alum is of fundamental importance in the formation of the flocc. When other possible factors are left out of consideration, optimum conditions for flocc formation will be found within a narrow zone of pH centered for dilute solutions at pH 5.5. The more dilute the water in total salt content and the less the alum added, the narrower becomes the pH zone with which optimum flocc formation is to be found. Consequently, precise pH control should in favorable cases permit of great economy in alum dosage.

Effectiveness of Social Hygiene Literature

A report on the effectiveness of social hygiene literature (*J. Social Hyg., Feb., 1923, i, 2, p. 84*) closes with the following sentence:

It is interesting to note that fear seems to have little value as an incentive to the maintenance of high standards of conduct, but while not a positive incentive, it undoubtedly serves as a negative check, or inhibitor of various forms of sex expression. When causes of fear, such as harmful consequences are thought to be guarded against, or eliminated, the value of the fear incentive is largely lost; hence the best foundation for social-hygiene literature seems to be in arousing the mastery impulse, and in stirring desires for achievement, approval of self and others, and, in making right conduct or, at least, its not too distant consequences, attractive enough to hold attention and become a determiner of conduct.

Influence of Meat-eating Upon Comfort and Efficiency

A brief but highly suggestive contribution by Bassett, Holt, and Santos, from Cornell University Medical College, (*Am. Jour. Physiol., ix, p. 574*) indicates that the presence or absence of meat from the dietary for periods as long as one week has no demonstrable effect upon the power to perform physical work. On the other hand "there was a distinct and uniformly present sense of sleepiness for two or three hours during the afternoon period following the ingestion of 300 grams of meat."

Norwegian Illegitimacy Act Widely Discussed

The widely discussed Norwegian illegitimacy law, known as the Castberg Act, provides that the state become responsible for establishing the paternity of the child and for its maintenance. The mother reports to the local authorities and they must take action and see to it that the father support the mother and child (except in certain cases). The child must be supported according to the means of the better situated of the parents. Maintenance of the child is required until the sixteenth year and in some cases beyond that. If circumstances of wealth justify, the mother is required to contribute to the support of the child. The child inherits from the father's line as well as the mother's; but the property relations of husband and wife are changed to prevent any child that may be born out of wedlock from inheriting from either spouse, property which has come into the marriage through the other. In case of absconding or defaulting fathers the state cares for mother and child and there is no loss of citizenship attached to relief in such case. Where the paternity of a child cannot be determined, two or more males any of whom may possibly be the father of the child may be ordered to contribute to its support. Severe penalties are provided for any mother that may falsely accuse any male of being the father of her child.

Clarke discussed the working of this law with officials in Christiania and reports (*J. Soc. Hyg., March, 1923, ix, 3, p. 146*) that they are well satisfied with the results. Illegitimacy has not increased; the law has given no occasion for blackmail; and illegitimate children have received better care since the passage of this law in 1915.

Carbon Tetrachlorid and Hookworms

A critical review of the literature regarding the use of carbon tetrachloride in the treatment of hookworm disease is given by Smillie and Pessoa (*Am. J. Hyg., January, 1923, iii, 1, p. 35*) together with the result of their own investigations.

The conclusions reached are that carbon tetrachlorid, administered in 3 c.c. doses to adults, is an extremely efficient drug in the removal of *Necator americanus*. A single treatment will remove more than 95 per cent of the hookworms harbored. Doses larger than 3 c.c. are unnecessary and may be harmful, and alcoholics are especially susceptible to the toxic action of the drug. This drug has a toxic action on the host similar to that of chloroform; the symptoms being dizziness, slight nausea, headache and somnolence. These are usually transient. A later and more serious manifestation is fatty degeneration of the liver, though this rarely occurs and is seldom fatal.

Cooper and Valada (*Mil. Surgeon, Feb., 1923, lii, 2, p. 187*) report excellent success with the small number of cases they have treated and pointed out the advantages to the army surgeon in the use of carbon tetrachlorid which ordinarily does not call for hospitalization, or, if it does, for a period not exceeding forty-eight hours. For comparison with this they state that the average number of days spent in the hospital by each patient treated with chenopodium was nine; the average number of days for those treated with thymol was 12.5.

Tuberculin Tests in Cleveland Dispensary

Tuberculin testing of the clientele of the Babies Dispensary and Hospital of Cleveland, carried on by Wahl and Gerstenberger from 1907 to 1921, shows (*Arch. Pediat., March, 1923, xi, 3, p. 143*) (1) females 61 per cent positive, males 51 per cent positive; (2) infants under six months 35 per cent positive, children 36-48 months 87 per cent positive; (3) colored children gave highest percentage of positives; (4) children exposed to two or more sources of infection gave a higher percentage of positive reactions than those exposed to one source; (5) when only one source was present the mother was responsible in greatest number of cases, brother or sister next, and father the least number; (6) children giving negative history of exposure gave 15 per cent

positive reactions, those having positive contact history 44 per cent; (7) scrofula gave the highest percentage of positive reactors, then pulmonary tuberculosis, tuberculous adenitis, tuberculous osteomyelitis, tuberculous meningitis, and pulmonary miliary tuberculosis.

The writers recommend the use of a 1:1000 dilution of human old tuberculin, freshly prepared and checked on a known case of tuberculosis, and injected intracutaneously. Such a method is preferable to either the "burr" or "tattoo" methods.

World's Most Extensive Water Supply System?

The Apulian aqueduct in Southern Italy is now nearing completion after sixteen years of work. The trunk line, main, and subsidiary branches have a total length of 993 miles and supply the local distributing systems of 266 communities scattered over an area of 8,100 square miles, and having a total population of some three million people. The region served is the heel portion of the famous boot shape of the Apennine Peninsula, ancient Apulia, now divided into the provinces of Foggia, Bari, and Lecce.

This thickly populated agricultural region is fertile though arid. It contains seven towns with a population of over 50,000, the largest having 132,000 inhabitants. The Camposole Springs which serve as the source of water supply belong to a group whose combined yield is estimated at about 500 m.g.d.

An interesting account of the history of the project has been published by Gutmann descriptive of the engineering obstacles that have been overcome by tunnels, siphons, and aqueduct bridges (in the main trunk line 99 tunnels total 67 miles, 93 aqueduct bridges total 4.25 miles, and 6 siphons total 4.6 miles). (*Eng. News-Record*, March 1, 1923, 90, 9, p. 389).

Epidemiologic Survey in a Military Camp

During the August training period at the Citizens' Military Training Camp at Camp Meade, Md., in 1922, a beginning was made by P. F. McGuire and A. Parker Hitchens, Washington, D. C., (*Journal A. M. A.*, March 10, 1923), to take advantage of the unusual opportunities for epidemiologic surveys, with reference to diphtheria carriers and carriers of intestinal diseases. Cultures were made from the throats of 1,080 students, and these were studied for the pres-

ence of virulent diphtheria bacilli. In 0.83 per cent of the culture virulent diphtheria bacilli were found, indicating that nearly 1 per cent of the young men coming to the camp carried virulent diphtheria bacilli in their throats. The Schick test for susceptibility to diphtheria was made on 832 of the students, with the result that 55 per cent of them reacted positively, indicating the absence of antitoxic immunity. In spite of this high rate of susceptibility and the number of persons in close association with them carrying diphtheria bacilli in their throats, no clinical diphtheria developed during the training period. Among seven of those found to be carrying virulent diphtheria bacilli, three gave positive Schick tests; the others were immune. A study of specimens of feces from 750 of the students revealed parasites in ten, or 1.3 per cent. One of these, a young man from rural Virginia, was found to be a carrier of the hookworm. The same 750 specimens of feces were studied culturally for the presence of members of the typhoid-paratyphoid-dysentery group of bacilli, but no evidence of a carrier of a member of this group was discovered.

V. D. Clinic and Its Limitations

The venereal disease clinic, its limitations, are discussed (*Medical Officer*, Oct. 28, 1922) by Lees of Edinburgh.

Most of the clinics have been of value, but whether the cost has been commensurate with the results time can only tell. Some of the advantages have been enlightening of the public, education of the doctor, especially the medical officer of health, and have placed within reach of the general practitioners the means of early diagnosis and treatment. The physicians have also had the opportunities of perfecting themselves on all of the latest methods of diagnosis and treatment. And more, facilities have been placed in reach of every sufferer of the treatment of his disease. As a result of these activities a vast amount of knowledge has been obtained concerning the prevalence, the pathology, the cure and treatment which will prove of immense value.

Many have a fear of coming to the clinics. The importance of the initial interview is stressed. The physician in charge should see each new patient and he should endeavor to teach them the dangers of the disease by pointing out the necessity for prompt and continuous treatment, of his ability to cure them, the principles of cleanli-

ness and the advantages of a straight and sober life.

Compulsory notification of those who dismiss themselves from treatment is thought to be valuable. The difficult problem of treating seafaring men is recognized and international action is recommended. In Edinburgh the American Consul prohibits any American sailor from leaving the city if he is in an infectious stage. Difficulties are encountered in obtaining the source of infection and, when given to the medical officer, it is impossible to get the person accused to come to the clinic for examination and treatment. The author thinks the health authorities should be given the power to bring these persons in for examination and treatment. It is suggested that medical students be impressed with the importance of gonorrhea, syphilis and post graduate courses are recommended for practitioners.

Tularaemia

The Public Health Service has issued an admirable collection of reprints¹ in regard to deer-fly fever or tularaemia, the curious disease of rodents discovered by Francis two years ago.² This disease is a slow septic fever accompanied with marked prostration, lasting from three to six weeks and followed by slow convalescence with marked involvement of the lymph glands. Fatal cases occasionally occur. The disease occurs naturally in Millard County, Utah, several dozen cases a year having been reported for a number of years. It exists primarily in the jack rabbits of this region and may be transmitted from them by the biting fly *Chrysops discalis* which is probably the usual agent in transmission to man, by the bite of the rabbit louse, which presumably keeps it going among the rabbits during the winter season, by the bedbug, and by the mouse louse. The disease is also very easily contracted by market men or laboratory workers handling infected rodents.³ Of six men intimately connected with the laboratory investigations of this disease during the past two years in the laboratories of the Public Health Service every one has contracted it.

1. Bulletin No. 10, Hygiene Laboratory, U. S. Public Health Service, March, 1922.

2. Francis, E. Deer-Fly Fever: A Disease of Man of Hitherto Unknown Etiology. Public Health Reports, Sept. 12, 1919, pp. 2061-2062.

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NEWS FROM THE FIELD

Births Gaining Over Deaths In Illinois

The Illinois death rate has been gradually decreasing since 1916, according to statistics of the state department of health. In 1916 the death rate for the state was 13.2. That year 116,536 births were recorded and 81,353 deaths. Last year the death rate was 11.3, the deaths being 75,788 and the births 133,906. The birth rate showed a corresponding increase in this period.

Births recorded in 1916 gave a rate per 1,000 of the population of 18.9, while in 1922 the rate was 20. A more thorough registration has brought the rate up, it is said.

Plan a Campaign Against Venereal Disease

As the result of an effort of the League of Red Cross Societies to establish a common plan of campaign against venereal diseases there was formed in January, 1923, between representatives of the British, Belgian, and French national societies the *Union Internationale contre le Peril Venerien*. Other associations and other countries were represented unofficially. The objectives of the *Union* will be (1) to centralize all information concerning the campaign against venereal disease, and to publish an international information bulletin; (2) to act as a link and coordinating body between various national societies combating venereal disease; (3) to facilitate the study of problems relating to the problem, to insure the general adoption of prophylactic measures, and to promote legislation; (4) to subsidize all scientific research which conform to accepted standards and to found and maintain model institutions for the study of the problem; (5) to organize congresses and conventions; and (6) to inform governments through the intermediary of national member societies of the measures calculated to promote the campaign against venereal diseases.

At Youngstown, O., the common pleas court decided recently that the city cannot exact a license fee from school cafeterias, holding that the board of education is a quasi-corporation which cannot be taxed by the municipality.

California Camp Sanitation Regulations Amended

At its regular meeting held in Sacramento, January 6, 1923, the California State Board of Health amended rules 3 and 5 of the Regulations Governing Campground Sanitation, adopted December 4, 1920, to read as follows:

Rule 3.—Fly-tight privies or water-flushed toilets shall be provided and shall be maintained in a clean and sanitary condition. Separate toilets for men and women shall be provided, one for each twenty-five men, and one for each twenty-five women, or fraction thereof, of the maximum number of persons occupying such tract at any time. No camp or picnic spot within such tract shall be at a greater distance than 400 feet from both a men's and a women's toilet. The location of all toilets shall be plainly indicated by signs.

Rule 5.—The method of final sewage or refuse disposal utilized in connection with the operation of any camp or picnic grounds shall be such as to create no nuisance. *A sufficient number of iron hoppers or basins, connected with sewerage systems or covered cesspools, to be used for the proper disposal of domestic waste waters shall be provided.*

Germany Regulates Sale of All Foodstuffs

Exerting a stringent control over the distribution of foodstuffs, the German government has put into effect a stricter regulation requiring the licensing of all those engaged in the sale of such commodities. Those licensed, according to Consul General Coffin, Berlin, must carry with them the permit, to be presented upon demand, which bears a photograph for identification purposes. Licenses are granted only when it is proved that the applicant is fully qualified as to reliability and practical knowledge to conduct a food business, and also that an economic need exists for the granting of the permit. The various State Governments have been requested to make thorough investigation into all licenses previously granted, and which are still in force.

Dr. Edward P. Hyde has resigned, effective June 30, from the directorship of research of the National Lamp Works, General Electric Company, Cleveland. Dr. Hyde will be abroad the coming year engaged on the work

of the International Commission of Illumination of which he is president.

Ground Donated for Hospital for Colored Veterans

The U. S. Veteran's Bureau Hospital for colored veterans to be opened within the next few weeks at Tuskegee, Ala., and erected on ground donated for the purpose by the Tuskegee Normal and Industrial Institute, will be manned entirely by a colored staff. The U. S. Civil Service Commission is advertising for suitable applicants for the following positions: Graduate nurses; reconstruction aides and assistants; dietitians; physicians; dentists; laboratory workers; and two pharmacists.

Enabling Blind to Become Self-Supporting

The Chicago Lighthouse for the Blind gave 43,325 hours of work to the blind in 1922. Two shops are conducted by the Chicago Lighthouse, one a weaving and the other a mechanical shop, both of which offers occupations so varied that any blind student may be employed on a graded scale. The organization is for the benefit of the permanently blind and is directed wholly toward enabling the adult blind to become self-supporting and useful citizens.

Annual Report of Public Health Association

The annual report number of the *Bulletin of the Tuberculosis and Public Health Association of Rochester and Monroe County, New York*, recounts a year of achievement which could well be emulated by other organizations of the kind. A tuberculosis case registry has been established; sanatorium occupational therapy has been promoted; open air classes have been instituted; health examinations and nutrition classes conducted; rural extension has been made of all round service and camps for children organized. Under the auspices of the Association, school nursing and medical service has become notably effectual.

A bill revising the factory law in Japan proposes to reduce the working hours for juveniles and for women; and to give them two holidays each month; to prohibit night work for juveniles; to restrict working hours for women before and after childbirth; to improve the sanitary conditions in the factories; and to give higher compensation for injuries even when the accident is due to carelessness on the part of the worker.

New Glass Withstands Great Force of Impact

A new glass is being developed for use in industrial goggles of special composition which withstands much greater impact than the ordinary laminated or hardened lenses. At present there are two types of goggle glass, the first composed of two layers of glass with an interposed film of celluloid or similar material which resists penetration if a missile breaks the glass. However, the thickness of the double lens and the color of the celluloid layer causes a reduction of light transmission that is objectionable. By a second method the glass is specially treated to increase its resistance to impact or stress.

A glass has been developed, says *Chemical and Metallurgical Engineering* which has withstood 125 or more blows on each side from a steel ball about five-eighths of an inch in diameter dropped from a height of twenty-one inches. A glass which will withstand ten blows on one side is considered satisfactory by the Bureau of Standards. In the tests reported only one lens was broken under an impact of 2.95 foot pounds which was delivered by a 1½ inch steel ball falling eight feet. This is ten times the blow the average glass will withstand.

New Schedule of Compensation for Medical Services

The Utah State Industrial Commission has issued a new schedule of medical and surgical fees permissible under Workmen's Compensation. The maximum fees as shown on the schedule may be exceeded on the discretion of the Commission, but, regardless of the maximum fees so established, the ruling of the commission will hold the physician's fee down to the prevailing charges for similar work in the community. One of the rules provide that only one-half of the scheduled fee will be allowed if the case terminates fatally within seven days of the date of operation.

Cooperative Study of Juvenile Delinquency

The reception accorded the opening of the Dallas, Tex., Child Guidance Clinic opened April 5 promises constructive results in this district from the cooperative plan for the study of juvenile delinquency under the National Committee for Mental Hygiene and the Commonwealth Fund. After an initial period of six months, the service will be continued under local direction.

Infant Mortality in Relation to Wage of Father

Such factors as economic status, conditions contingent upon housing shortage, lack of public welfare activity, and uniform influences growing out of health matters in a community where practically all are employed in a single basic industry, are well exemplified in a study just completed by the U. S. Children's Bureau of infant mortality in Gary, Ind. Additional interest is given to the study because of Gary's newness and rapid growth and the large percentage of foreign born population of diverse extraction. The infant death rate in the districts of better-housed American workmen was 90.6 per thousand births; in congested, foreign-born districts the rate was 141.2. An increase of infant mortality was noted with a fall in the earnings of the bread-winners. When the chief bread-winner's earnings amounted to \$1,850, the infant death rate was 89.4; when the earnings were between \$1,050 and \$1,850, the rate increased to 127.1; and when the earnings fell below \$1,050, the rate rose to 137.8. The heaviest toll of infant life was taken by gastric and gastro-intestinal diseases. The report concludes with the statement that much of this mortality is preventable and conditions bid fair to improve the ensuing year through measures already under way in infant welfare stations, prenatal clinics, and public health nursing.

Competitive Athletics at Studebaker Corporation

Of the value of athletics to industrial organization D. G. Baird of the Studebaker Corporation, Detroit, says in the May issue of *Industry Illustrated* states that competitive athletics may be credited with building up a morale at the Studebaker plant that is reflected in a labor turnover at the Studebaker plant of 4.2 per cent when it was 14.7 per cent in other factories through the city of Detroit in 1921, and 15.9 at Studebaker in 1922 as compared with 21.5 for the city average. Athletic work parallels in the plant the gradual transformation of apathetic, disinterested workmen into exuberance and animated interest on the part of the men. The claim is made that no other industrial organization in the country has so large a proportion of all employees participating in some form of athletic sport. The program includes athletic activities every day and evening throughout the year.

Requirements of Nutritional Specialists

A report by the Sub-Committee on Training Standards of the Advisory Committee on Foods and Nutrition of the National Child Health Council has been issued as a supplement to *Mother and Child* for May. Fundamental training in physics, chemistry, and biology is required preliminary to specialized training in nutrition, this is to be supplemented by studies in physical and chemical physiology, dietetics and household management, and practical experience in medical social work. Sociology, economics, and some bacteriology are recommended in addition to the above essentials. Clinical experience is required of nutritional specialists. The report, states the committee, is merely tentative and is to be revised as the work of providing courses in nutrition for public health workers progresses.

Few Statistics on Health Conditions of Women

There are valuable statistics on the health of men; there are comprehensive figures on the health of babies; but there are distressingly few and for the most part inadequate figures on health conditions of women. Hence the challenge of the Women's Foundation for Health to reach the goal of health examinations for one hundred women out of every hundred women in the United States. Committees on cooperation with the Foundation have been established with this objective in view with the General Federation of Women's Clubs, the Medical Women's National Association, and the Council on Public Health and Instruction of the American Medical Association. Dr. Lenna L. Meanes, director of health education of the Foundation, is chairman of each of these committees.

New Appointments in Important Fields

Dr. Willard Eugene Hotchkiss has been appointed director of the Bureau of Industrial Education of the Institute of American Meat Packers to develop a plan for the technical education of men entering the packing industry. Announcement is also made of the appointment of Dr. C. Robert Moulton, previously head of the department of agricultural chemistry in the University of Missouri, as director of its bureau of nutrition. Miss Gudrum Carlson, formerly of Teachers College assumes direction of the Bureau of Home Economics.

Great Decrease In Agricultural Population

A decrease during 1922 in the agricultural population of the United States is reported by the U. S. Department of Agriculture of approximately 460,000 persons, this estimate including not merely workers, but men, women, and children. The movement from farms to towns in 1922 was estimated at about two million persons. Births on farms were given as 925,000 and deaths as 265,000.

In the shift of agricultural population to cities and towns relatively the largest movement was in the mountain states, followed in order by New England, the Pacific, the Middle Atlantic, the East North Central and the South Atlantic States, all above the national average. Below were the West South Central, the West North Central and the East South Atlantic States.

Los Angeles Plans Third Vacation Park

Los Angeles plans to establish its third vacation field in the summer of 1923 in Sierra Park. The situation of the new playground is rugged and in certain parts the elevation is such as will require certificates of permission to take certain of the side trips that are possible. A temporary camp at Lake George is planned this year and, if this season's experience justifies the project, a permanent camp will be established later at Reds Meadows.

"Far-sighted as the playground policy of Los Angeles is, the example of practical municipal play camps has been studied and copied by other cities and by the Federal Government. Nothing has ever been done along municipal camp lines so commendable as the one planned for the Sierra National Park."

Limit Acid Pressure to Eliminate Accidents

Acid accidents must stop, says a statement in *The Chemical Age* in announcing the results of an investigation by the tank car pressure committee of the Manufacturing Chemists' Association. Tank cars carrying acids, more especially sulphuric acid, should not be subjected to a pressure of over thirty pounds per square inch but, according to the report, many cases were encountered of pressures as high as eighty pounds. Serious damage to apparatus as well as personal injury results from the prevalent neglect of heeding the thirty pounds per square inch pressure recommendation.

Suitable Places of Rest for the Tuberculous

The Tuberculosis Society of Detroit and Wayne County (Michigan) is fighting the white plague in factories chiefly through educational work with the men. The Supervisor of Industrial Health has reached 32,000 men during the noon hour in the past year and a half. The Division of Industrial Health supplements this work with research into industrial causes of tuberculosis, secures suitable places for affected men, and has classified the available places for arrested cases of tuberculosis.

Rates of Death by Accident Highest in Young

The *New England Pilot* gives the following figures from the census figures of 1915 on the deaths by accident that occur in the early years: From the age of 20 to 24, 25 per cent of all deaths are due to accident; the percentage from age 25 to 39 is 22 per cent; from 40 to 44 is 14 per cent; and from 45 to 49 is 11 per cent. Two causes operate to produce a higher ratio of accidents in the early years: Mortality from disease is then at a minimum, and accidents bear a close relation to physical activity, highest in the younger groups.

Chicago Women Physicians Organize Council

Chicago women physicians have formed an organization to be named the Chicago Council of Medical Women. Dr. Anna M. Blount was elected the first president, Dr. Lena K. Sadler, secretary, and Dr. Eliza R. Morse, treasurer. Good fellowship is a prominent objective, and the chief contribution to science will consist of the criticism and compilation of clinical experience for publication in current medical periodicals. The several specialties included in the membership of the society will thus be assured authoritative and early reports of new and interesting scientific materials.

Excess profits in the mercantile business of Benjamin Rosenthal, Chicago, will hereafter be devoted to charitable and philanthropic enterprises. The Benjamin J. Rosenthal Charities, Inc., will contribute materially to charitable enterprises now in the field, and will especially be devoted to loans in amounts up to 75 per cent of property valuations to aid wage earners in acquiring their own homes.

Atmospheric Conditions Affect Workers

The first publication of the Committee on the Atmosphere and Man, issued in November, 1922, reports progress in four lines of inquiry: Variations in influenza from city to city; mortality in New York City; factory records; and laboratory experiments.

Efforts to secure reliable records of the work achieved and the prevailing atmospheric conditions during such performance in the sixteen factories being studied have been complicated by the need to find more factories in northern climates, and to select working conditions and processes, and personnel where the factors involved will be comparable. Also, variables due to seasonal occupation need to be eliminated. While no conclusions will be drawn until data covering a period of one year have been compiled, careful studies of one kind and another have been made. It is especially noteworthy that in so many plants consistent interest in atmospheric conditions as affecting work and workers has led to the installation of instruments of accuracy and methods of observing and recording fluctuations in temperature and humidity that in themselves should be productive of very marked improvement in the hygiene of the plant.

Laboratory work has lagged for lack of men and funds, but the scheme includes cooperation between various workers in the field and a definite contribution to the study on the part of the American Society of Heating and Ventilating Engineers, the U. S. Bureau of Mines, and the United States Public Health Service.

Care Provided for Patients not Seriously Ill

A scheme for the hospital care of those not seriously ill is reported by the *Deutsche medizinische Wochenschrift* as extremely satisfactory. Sanatoriums and institutions have been converted for this use in a much simpler and less expensive manner than is required for emergent cases and the large numbers of men, women and children who are suitably cared for in such institutions are thus diverted from the greatly overcrowded hospitals in Germany. The method is especially adapted for the care of chronic affections. Economy, efficiency, and the interests of the patients are alike served by the segregation and treatment of the seriously ill apart from the chronics and the slightly indisposed or convalescents.

Injurious Substances Prohibited in Ice-Cream

A new ice cream law which became effective in Pennsylvania March 20 prohibits the use of all chemicals and doubtful substances that can prove injurious to consumers. Coconut fat and other oils are prohibited in the manufacture of ice cream, as well as the use of paraffin in chocolate coated ice cream. The use of Tragacanth gum is eliminated under the new measure, and the sale of any imitation or substitute for ice cream under a coined or trade name is forbidden.

Importance of Sanitation in Handling Pork

Conditions under which spoilage of pork hams and shoulders take place, made the object of special study by E. A. Boyer, have been reported in a recent issue of the *American Food Journal*. The organisms found were both aerobic and anaerobic in nature, and two anaerobes were found in such a large percentage, and possessed of such biochemical characteristics as to be considered largely responsible for the loss of 2,717,597 pounds of hams condemned, and \$19,597 pronounced tainted in the fiscal year preceding June 30, 1922. Bulletin No. 132 of the Department of Agriculture sets forth the importance of thorough sanitation in the handling of these products.

North Dakota Appropriations for Health

At the business meeting of the National Vocational Guidance Association, the following officers were elected for the ensuing year: Dr. Harry Kitson, president; Dorothea de Schweinitz, first vice-president; Harriet Towne, second vice-president; Professor Henry Brewer, secretary; and Arthur F. Payne, treasurer.

Three important bills have been introduced into the North Dakota Senate by the Department of Public Health. The first, known as Bill No. 54, requests legal authorization of a state department of health and a public health advisory council, calling for an appropriation of \$42,900 for a period of two years. Bill No. 55 concerns the authorization of the department of health to establish full-time cooperative county health units. The suggested appropriation is \$10,000. Bill No. 56 urges the acceptance of the provisions of the Shepard-Towner Infant and Maternal Hygiene Act; and an annual appropriation of

\$9,362.74 to meet the allotment authorized by the act.

Methods to Eliminate Diphtheria Germs from Milk

A dozen scientists from all parts of the eastern states carried out at the Borden plant at Endicott methods to eliminate permanently the danger of diphtheria infection from the milk supply of the country, says the *New York Times*.

One year ago there was a similar assemblage of scientists at the plant, who devoted their experiments to the purification of milk, with marked success, and progress has been made in the milk distributing center of the country during the past year as a result. This year particular interest centers on methods of destroying the diphtheria germ in milk. Last year's tests were on pasteurization as it relates to the extermination of tuberculosis bacilli and the typhoid germ.

Among the investigators are Dr. M. J. Roseman of Boston, Dr. McConkey of Boston, Dr. Armstrong of Washington, D. C.; Dr. D. B. White, Professor Ross, Dr. W. A. Stocking, Dr. J. W. Rice, all of Lewisburg, Pa.; Dr. North and Dr. Park of New York City, Dr. Holmquist and Dr. Miller of the State Division of Sanitation at Albany and Dr. J. P. Johnson of Homer, N. Y.

Rigid Inspection of Milk Sold in Restaurants

The Albany, N. Y., medical society has recently gone on record as wholly in favor of the model milk ordinance and solidly endorsing a campaign against "dipped" milk on the streets and in restaurants. The medical society will support thorough, rigid, and impartial inspection of farms, dairies, milk deliveries, and delivery methods as well as safe routine procedures in the pasteurization of milk as required by the model law.

Accurate Tables for Refrigeration Processes

An investigation by the U. S. Bureau of Standards of the properties of anhydrous ammonia in the interest of refrigerating industries has so far progressed that it is now possible for the department to compile a set of accurate tables for engineers' use in designing and studying the operation of refrigerating machines. All of the properties necessary for such compilation have now been determined within the range of pressures and temperatures ordinarily encountered

in practice. Tests conducted during the investigation showed that most commercial ammonias contain less than 0.1 per cent of impurities.

American Dietetics to Meet at Indianapolis

The American Dietetic Association announces the date of its annual meeting to be October 15 to 17, at Hotel Claypool, Indianapolis, Ind. The officers of this organization are: Mrs. Octavia Hall, Andalusia, Ala., president; Mrs. Hallie B. Sorsette, public health dietitian service, Washington, D. C., first vice-president; Miss Breta Luther, secretary; and Miss Anna Bolter, 824 E. Forty-seventh Place, Chicago, treasurer.

Red Cross Changes Names of Sanitary Stations

In the interest of precisely descriptive terms for the use of Red Cross workers helping to fight epidemics The *World's Health* proposes to substitute "sanitary zone" for the expression "sanitary barrier" now in use, and "exchange and observation station" for "quarantine station." The changes in terms would imply a much more flexible system of sanitary supervision of frontiers. Efforts would be limited to establishing a zone where the severity of medical inspection can be redoubled and where the slightest suspected case of disease can be placed under observation. At the exchange and observation stations trained epidemiologists will follow up all suspected cases and trace all lines of communication. The new plan was the outcome of a study of the subject made at the Eastern European Health Conference held at Warsaw in 1922.

Funds for Henry Phipps Psychiatric Clinic

Sufficient funds to place the Henry Phipps Psychiatric Clinic on a full-time basis are practically in hand, as all but \$35,000 of a fund of \$2,000,000 has been raised. This, it is confidently expected, will be easily raised before the time limit set by the anonymous donor. In addition to the initial gift of \$1,000,000, the Rockefeller General Educational Board has contributed \$750,000 and Mr. E. W. Harkness of the Standard Oil Company, \$125,000. Other contributions have amounted to \$90,000. With the exception of the psychiatric department in the University of Iowa, this will be the only department of psychiatry in a medical school on a full-time basis.

HEALTH PUBLICATIONS REVIEWED

The Public Health Service, Its History and Organization

This volume by L. F. Schmeckebier, belongs to a series of monographs prepared on a uniform plan giving a detailed discussion of each of fifty or more services of the United States Government, issued under the auspices of the Institute for Government Research. (Service Monographs of the U. S. Government, No. 10.) It reviews in complete and exhaustive fashion the history, activities, organization and personnel of the United States Public Health Service, with full citations of the text of the various laws which have been passed in regard to this service since its establishment as an unorganized marine hospital service in 1798.

The story of the development of the Public Health Service is a fascinating chapter in the history of governmental function and it is of particular interest to see how the usual tendency to incorporate the care of the individual in a plan of public health protection is here reversed, the hospital function having come first and being expanded into a comprehensive program of sanitation. The account of the activities and organization of the Public Health Service is clearly and effectively presented, and the volume will form an invaluable addition to the library of every student of public health.

The Johns Hopkins Press, Baltimore.

Health Building and Life Extension

This book, by Eugene Lyman Fisk, is the outcome of a survey of health conditions in industry undertaken by the Life Extension Institute for the Committee on the Elimination of Waste in Industry of the Federated American Engineering Societies. It deals with the importance of physical disability and the causes of such disability and the preventive, remedial and constructive measures which may be used for its control. The book contains a large amount of statistical material but this material is not very critically selected and is presented in a rather uninteresting fashion.

Macmillan, New York, 1923.

Tobacco and Mental Efficiency

Professor M. V. O'Shea's book represents the first formal publication issued in the name of the Committee to study the Tobacco Problem, organized in 1918 with Dr. Alexander Lambert as president, and will be read with keen interest by those who have been interested in this question, either for or against the fragrant weed. The first half of the book is made up of more or less desultory opinion from a group of 156 prominent persons in regard to their use of alcohol and their opinions as to its effects on themselves and others, an accumulation of amusing but quite unimportant gossip. The second part includes a statistical study of the relation between the school and college records of smokers and non-smokers and is of real interest. An analysis of a group of two thousand pupils indicates a correlation between smoking and scholarship of .51, which is apparently significant of a real relationship, although detailed figures are not given in the present volume. The question of course still remains open whether the habit of smoking was a real cause of interference with scholastic record or whether as seems rather equally likely the smoking was a symptom of a general tendency toward non-scholastic interests.

The third part of the book is based on some exceedingly interesting studies in the psychological laboratory in which eighteen subjects were required for repeated experimental periods to smoke a pipe which was either filled with tobacco in the usual way or warmed by an ingenious electrical arrangement so that the air drawn into the mouth was about the same temperature as that of ordinary smoke. The subjects were blindfolded and were apparently quite unable to tell whether they were smoking tobacco or not. An analysis of the physical condition of the subjects on the smoking and non-smoking days indicated that the smoking had a very definite effect on the heart rate, the pulse rising on the average six beats on the smoking days. There is also reasonably clear evidence that the steadiness of motor control as evidenced by the ability of the subject to hold a stylus was unfavorably affected by tobacco. The great bulk of Pro-

fessor O'Shea's tests dealt with various mental functions and these he thinks indicate that "taking a large number of individuals tobacco will slow down and disturb the intellectual processes of the majority."

The reviewer is not inclined to think that the figures bear this interpretation on account of the enormous variation in individual readings. Unfortunately, no calculations of probable errors are given. There were nine purely mental tests however and altogether 122 individual results reported for these nine tests (some of the eighteen men failed to take certain tests which accounts for there not being 162 such records.) Of these 122 tests results, each reported for a single man, sixty-two showed an unfavorable effect of tobacco and sixty a favorable effect. It would be safe to predict under these circumstances that computations of probable error would wipe out most of the differences observed. Nevertheless Professor O'Shea and the committee with which he is cooperating deserve the highest credit for making a beginning at the scientific study of this important problem and should be warmly complimented on the fair and impartial attitude which has been preserved throughout the work.

Macmillan Company, New York, 1923.

Stammering, Cleft Palate Speech, Liping

This little book of 101 small pages, with wide margins, by Kate Emil Behnke, is the product of three successive authors, each author improving and enlarging upon his predecessor's work; in fact, the book represents the work of three generations in the same family.

The first part has been written by Emil Behnke, the head of the family; the second part was written after the author's death by Mrs. Behnke, the wife of the author, and the third part by Kate Emil-Behnke, the daughter.

The book does not contain any revolutionary research on stammering, nor does it offer any new ideas in the treatment of stammering. On the whole, however, it makes interesting reading to people who are concerned about this malady which affects a goodly portion of our population.

Chicago Medical Book Co., 1922.

Rules of Recovery from Tuberculosis

This little hand book by Lawraon Brown, on "Rules of Recovery from Tuberculosis," may profitably be read both by patients who are afflicted with tuberculosis and by people who do not suffer from the disease for it is a treatise on regular habits and healthy living.

The author does not attempt to prescribe for the patient, but throughout the book offers sound advice that is as useful to the patient as drugs. There is good reason for the book having gone through four editions in the short space of time.

Lea & Febiger, New York, 1922.

Feeding, Diet and the General Care of Children

The book by Albert J. Bell, M.D., on "Feeding, Diet and the General Care of Children," was evidently written during the present epidemic of health publication. It is not particularly interesting or valuable.

F. A. Davis Company, Philadelphia, 1923.

Louis Fisher on The Health Care of the Baby

In the reviewer's opinion this is a poor book although it has gone through thirteen editions. Many methods described therein will be challenged by other pediatricians.

Funk & Wagnalls, New York, 1922.

The Problem of Population

This book by Harold Cox is a clear and convincing, if not particularly original presentation of the case for Neo-Malthusianism, emphasizing the importance of controlling the growth of population as a preventive of war, social distress and racial degeneration.

G. P. Putnam's Sons, New York, 1923.

Books Received

OPTICAL METHODS IN CONTROL AND RESEARCH LABORATORIES. By J. N. Goldsmith, S. Judd Lewis and F. Twyman. pp. 55. Adam Hilger, Ltd., London, 1923.
WHAT TO EAT IN HEALTH AND DISEASE. By Benjamin Harrow, Ph.D., pp. 203. E. P. Dutton & Company, New York, 1923.
A HAND BOOK ON POSITIVE HEALTH. Prepared and issued by The Women's Foundation for Health, pp. 198. American Medical Assn. Press, Chicago, 1923.
ADVENTURES IN SOCIAL WELFARE. By Alexander Johnson, pp. 455. Fort Wayne Printing Co., Fort Wayne, Ind.
REPORT OF THE NEW YORK STATE COMMISSION ON VENTILATION. Pp. 420. E. P. Dutton & Company, New York, 1923.
A TEXT-BOOK OF GYMNASTICS. By K. A. Knudsen, translated by Miss Ruth Herbert and H. G. Junker, pp. 338. J. B. Lippincott, Philadelphia, Pa., 1923.
THE FAMILY AND ITS MEMBERS. By Anna Garlin Spencer, pp. 322. J. B. Lippincott & Co., Philadelphia, Pa., 1923.
THIRTY YEARS OF PSYCHICAL RESEARCH. By Charles Richet, pp. 616. The Macmillan Company, New York, 1923.

TOBACCO AND MENTAL EFFICIENCY. By M. V. O'Shea, pp. 258. The Macmillan Company, New York, 1923.
THE NEWER KNOWLEDGE OF NUTRITION. By E. V. McCollum, Ph.D., Sc.D., pp. 449. The Macmillan Company, New York, 1922.
THE INFANT AND YOUNG CHILD: ITS CARE AND FEEDING FROM BIRTH TO SCHOOL AGE. By John Lovett Morse, A.M., M.D., Edwin T. Wyman, M.D., and Lewis Webb Hill, M.D., pp. 271. W. B. Saunders Co., Philadelphia, Pa., 1923.
OUTLINES OF SOCIOLOGY. By F. W. Blackwell and J. L. Gillin, pp. 636. The Macmillan Company, New York, 1923.
REPORT OF THE COMMITTEE FOR THE STUDY OF NURSING EDUCATION. C.E. Goldmark, Secretary, pp. 583. The Macmillan Company, New York, 1923.
REPORT OF THE SURVEY OF THE PUBLIC SCHOOLS OF PHILADELPHIA. 4 volumes. Published by The Public Education and Child Labor Association of Pennsylvania, Philadelphia, Pa.
THE SANITATION OF BATH HOUSES. By Wm. Paul Gerhard, C.E., pp. 16. The William T. Comstock Company, New York, 1922.

Athletes Find Use for New Jersey Armories

A plan outlined in the current issue of the United States *Army Recruiting News* contemplates extensive use of armories in the state of New Jersey by various organizations, such as the American Legion, grammar and parochial schools, preparatory and high schools, and industrial leagues for athletic activities that constitute one of the widest movements yet undertaken in the interest of recreation.

There will be sectional championship meets held in the track and field events, and after South Jersey has decided its winners they are to be sent against North Jersey to decide who will represent the State. This plan will be followed not only for the National Guard but for the American Legion and all schools and organizations participating. In this way all will be given a chance to compete for the State championships, which should develop some excellent athletes, it is believed.

Boxing will hold a conspicuous place in this program, and each organization will hold a series of elimination bouts to decide who will represent it in the tournament for the state championship. All classes of boxers will be entered from flyweight to heavyweight. The armories all over the state will be thrown open to those properly enrolled to use them for training purposes during the afternoons and on evenings when such occupancy will not conflict with drills of the National Guard. Regular army officers on duty as instructors with the Guard will be present to lend their assistance to those in training and to see that they get properly started in their athletic endeavors.

In this connection it is hoped that in the near future, says Frank A. Wandle, supervisor of recreation, Sec-

ond Corps Area, all the athletic training teachers in this work will be called together for a month's study and training under Lieut. Col. H. Koehler of the United States Military Academy. The idea behind this is that the physical training of New Jersey's young Americans would thus be coordinated and systematized throughout the State. Colonel Koehler's system, which has been so successful at West Point, is considered the best extant and is being used in many places throughout the country. The benefits from the adoption of a uniform plan of physical training must be obvious to all, as the young ones could then receive their recruit instruction and go from class to class through school and advance step by step in their physical training at the same time.

With the announcement of this new plan for the use of the State armories, it was made clear that they are not going to be thrown open to every one without regard to discipline. The soldiers will naturally have preference, and on drill nights will probably have programs of their own. Other nights will be set aside for general participation by residents, and the whole program will be supervised by General Gilkyson. The decision to open the armories especially for the use of the young man has awakened a great deal of interest in the National Guard.

Respiratory Protection in Street Manholes

Workers in street manholes for telephone and electric power conduits, sewers, gas and water mains, often encounter irrespirable atmospheres due to leakage of artificial or natural gas, sewer gas or gases caused by electrolysis. Inquiries received by the Bureau of Mines and conferences between engineers who have to deal with manholes and members of the Bureau have disclosed the need at times of respiratory protection for workers in manholes. It is planned to secure samples of contaminated air from manholes and to test hose masks in them. Recommendations for protection of workers in manholes will be published. This experimental work is being conducted at the Pittsburgh, Pa., experiment station of the bureau.

Illinois Institute for Nurses

Announcement is made of an institute for nurses to be held in Chicago, September 3 to 14, inclusive, under the auspices of the Illinois League for nursing education.

Significance of *B. Coli* in Water

(Continued from Page 527)

In 1913 and 1914 Rogers and Clark, of the United States Department of Agriculture, began what proved to be a fundamental piece of research. Using highly refined bacteriological and chemical methods, they demonstrated conclusively that the so-called *B. coli* group, which had previously been considered one group of bacteria, really comprised two separate and distinct groups, one representing "true *B. coli*" and the other a similar but distinct "aërogenes group." These two groups, which gave more or less identical reactions by tests previously applied, were distinctly differentiated by different ratios of hydrogen to carbon dioxide in the gas formed and by different hydrogen ion concentrations established in special media under standardized conditions. The differentiation as first made by Rogers and Clark required rather elaborate apparatus and technic, beyond the reach of most water bacteriologists; but subsequently, as a result of work by Dr. Clark and others, the technic was greatly simplified, so that the differentiation can now be made by very simple tests, requiring no special apparatus.

Applying these tests to large numbers of cultures derived from different sources, Rogers and Clark found that the colon bacilli found in feces, whether human or animal, belonged almost exclusively to one group, which they called the "fecal group," while the colon-like organisms found on grain belonged usually to another group, which they called the "non-fecal" or "grain" type. Their work is still relatively new, but already it has been confirmed by quite a number of independent observers, and, so far as I am aware, all subsequent work tends to establish the original conclusions arrived at by Rogers and Clark: that the "fecal type," or true *B. coli*, is predominant in fresh feces and in material exposed to fecal contamination, while the colon-like organisms found on grains and in unpolluted soil almost invariably prove to belong to the "aërogenes group."

Determine the Type

As to the significance of this, a good many sanitarians appear to have the impression that it renders the ordinary test for *B. coli* less significant than previously. While this may be a natural viewpoint, it is not justified.

It is true that a positive test for *B. coli*, made according to present standard methods, may indicate the presence not of true *B. coli* but of the nonfecal aërogenes type. But this has always been true, though not previously recognized; and the probability that a positive standard *B. coli* test in water means fecal contamination is just the same now as it was ten years ago. Moreover, in cases of doubt or special importance it is now possible to carry the test further and determine whether the organism is true *B. coli* or aërogenes. Also, this recent work appears to offer a satisfactory explanation of the finding of so-called *B. coli* in the past in situations where their presence could not be satisfactorily accounted for as due to fecal contamination. Presumably these organisms were of the aërogenes type, not true *B. coli*.

The American Public Health Association has not yet made it obligatory in their standard methods to differentiate *B. coli* from aërogenes, but they describe the technic, so that any reasonably well trained bacteriologist can make the differentiation. In the absence of such differentiation a positive test should be interpreted as heretofore; that is, as constituting strong presumptive evidence of fecal contamination. Admitting that this is not positive proof, the benefit of the doubt should be given to the public and the contamination should be considered as of fecal origin unless evidence is brought forward to the contrary.

So far the discussion has referred only to demonstrating the presence of contamination with excreta; but even granting that the presence of excreta is demonstrated and the extent of the contamination measured, this still is not equivalent to measuring the danger of the water in terms of the probability that it will cause infection. For this several further steps are necessary.

First, it is necessary to differentiate between excreta from lower animals and that from human beings. As this can not be done by means of chemical or bacteriological tests, it requires a survey of the sources of contamination to which the water is exposed. This may afford more or less definite information. For example, *B. coli* is of much more dangerous significance in a well obviously contaminated from nearby privies than one

not subjected to contamination from privies but located near a heap of stable manure.

However, even the demonstration that water is contaminated with human excreta does not necessarily indicate that it is immediately dangerous and falls far short of measuring its danger. A well or spring grossly contaminated from a privy and used by a small number of people may not be actually dangerous merely because none of the people contributing to its contamination is infected with any pathogenic organisms. Such a well, though very offensively polluted, may not cause any infection within a generation. On the other hand, it is quite certain that a river such as the Ohio, which constantly receives sewage from several millions of people, always contains typhoid bacilli and other pathogenic intestinal bacteria. This is necessarily so because among the millions of people whose excreta reach the stream there are always a very considerable number harboring pathogenic bacteria, either as active cases or as carriers. The only question as to such water is not whether or not it is contaminated but to what extent.

Sources of Pollution

But even when it is known that a water contains typhoid bacilli or other pathogenic bacteria, this still does not constitute an active measure of its danger. Even if we knew the exact number of typhoid bacilli per thousand liters of water, we still would not know what proportion of the people drinking this water would become infected, because we know practically nothing as yet regarding the dosage necessary to cause natural infection. Nor have we more than the vaguest ideas as to the relative danger of waters containing different numbers of pathogenic bacteria. For example, if a water containing ten typhoid bacilli in a certain volume will cause infection in 10 per cent of the people who drink it, it by no means follows that a water containing one typhoid bacillus in the same volume of water will cause 1 per cent of infections. Conceivably it might still cause the same proportion of infections as the more highly contaminated water, or it might cause none. We simply do not know the effect of varying dosage of infective organisms.

The nearest approach that has been

made to the exact knowledge of the danger of water supplies, in terms of the number of cases of infectious disease which they will cause, has been made not by bacteriological studies but by epidemiological observations. For instance, our estimate of the danger of raw water from the Ohio River is based not on its bacteriological examination but on past experience in cities where this water has been used; an experience which has shown that one per cent or more of the consumers develop typhoid fever each year, whereas the same cities when using more or less adequately purified water supplies have not suffered much more than one-tenth such a typhoid incidence rate.

I have dwelt upon the difficulties and indirection of estimating the danger of water supplies, not with a view to casting doubt upon the value of bacteriological examination but merely to emphasize the point that the sanitarian who attempts to estimate the quality of a water supply must take into consideration not only the bacteriological evidence of pollution but also the character of the sources from which the pollution presumably comes.

In extreme cases an interpretation

may be very simple. For instance, a water which consistently gives negative *B. coli* tests and very low bacterial counts may be pronounced safe so far as infection is concerned without knowing anything more about its origin. Equally, the water from a stream known to receive the sewage of a city a short distance upstream may be condemned as unsafe without the formality of a bacteriological examination. It is the intermediate cases which are difficult; those in which bacteriological examination shows moderate contamination and a sanitary survey reveals exposure to possibly though not certainly dangerous contamination. As to such cases there is always room for perfectly legitimate differences of opinion, which can be proven only when epidemiological evidence shows that the water is responsible for infection or that it is causing none. It was circumstantial epidemiological evidence which first proved the agency of water supplies in spreading infection, and it is evidence of the same kind, rather than direct bacteriological evidence, which best serves today to establish and measure the danger of a water supply.

Food Fads and Health

A FEW "swallows do not make a summer"; neither do a few swallows make a balanced meal and it is for this reason that people who need to know the true values of the foods they are eating should look to the scientists for the information rather than be misled to believe that a certain food practice has a mysterious or unusual importance. Fasting has its merits in individually selected cases, but the voluntary elimination of this factor or that in the daily diet may have cumulative effects undreamed of by the uninitiated. A broadcast recently sent out by the New York State Department of Health illuminates the subject of the ubiquitous food fad and its possible effects.

The fact is that most fads represent partial or half truths—and he is wisest who relies not alone upon his own beliefs and preferences as to the real value of any single practice, but who is alert to find out the estimation or value placed on it by true scientists who have no other motive than to search for truth and the improvement of human kind.

One of the most common practices is the "going-without-breakfast" fad, which has been especially developed among young people, notably girls.

The normal person needs a nourishing breakfast to draw on for energy used in the day's activities and it is very doubtful if an individual can or does get ample nourishment from two meals a day.

The aversion which some people show to milk and eggs, as such, may be counteracted by always serving these foods in combined or cooked form. Milk will serve the needs of the body as well in cocoa, soup, custard, or sauce as if it is served plain from a glass. The necessary thing is to get at least a pint of it into the daily food intake. An egg is an egg whether it is in a custard, or is eaten boiled, noached, or scrambled. It is worth knowing that the yolk of the egg will furnish one-tenth of a day's requirement of iron and that it would take one potato or two tablespoonfuls of dried beans or one-third cup of baked beans or one-half cup of oatmeal or three figs or six prunes and eight dates or one tablespoonful molasses, or five young carrots, or about one tablespoonful of spinach to supply the body with as much or more iron. Egg yolk also is a good source of the vitamins A and B, now known to be essential to growth and normal development.

After one has jogged on toward the age of thirty-five or forty and finds himself possessed of more girth than can be viewed with pride, all sorts of reducing fads are often resorted to—such as "counting calories," the "hot

water taking" fad—the "raw food" fad and numerous others.

Each of these fads probably contains an element of truth which can readily be pointed out. A calculation of the number of calories or heat units consumed in one's daily energy expenditure is valuable and illuminating in indicating whether one's intake and outgo balance—but it is of equal importance to know if one's calories come from the right source and in the right proportion. Such calculations are too involved for the untrained person to be interested in, as a rule. Calory calculation is a starting point, but an indiscriminate choice of foods on the basis of calories alone is dangerous and may be harmful.

Equally dangerous is the hot water taking fad. "Water internally, externally, and eternally" is a catch phrase which has captured the imagination of many. Hydrotherapy, is recognized by physicians as of especial value in some cases—but the judgment about when to use it and how much to use should be left to the decision of a physician.

The raw food fad apparently has some justification insofar as it represents a reaction against bad cooking. Poorly cooked vegetables are more difficult to digest than properly cooked ones—but the stomach does attempt to digest them; while insofar as we know uncooked root vegetables are in general "ignored and passed on" by the stomach. The least we can say about the raw food fad is that it is without scientific basis. And there is always the very real danger of typhoid fever from foods that have been grown in soil contaminable with sewage. For this reason all uncooked vegetables such as lettuce, celery and water cress should be carefully washed.

The sour milk fad had its vogue a few years ago due to the value assigned to it by the French scientist, Metchnikoff, as a means of getting rid of the germs causing intestinal putrefaction. It has proved of value in the treatment of certain cases of intestinal trouble, but for the normal person sour milk is useful only because it has the same constituents as sweet milk.

Strict vegetarianism is probably not practised by very many people, although the philosophy is held by some that we should not sacrifice animal life for food. These same persons wear shoes made from animal hides and silk from the silk worm, however, and most of them use eggs, milk, and cheese; and the nuts, cereals, and vegetables of which their diet mainly consists have certainly had life and would have life if they had not been used as food.

The truth of the matter is that many persons eat more meat than should be eaten. "Meat once a day" is a limit which can be safely adhered to. But laboratory study has shown that the proteins or the body building constituents or content of foods, from animal sources, have certain higher value than do those from vegetable sources and the superior palatability of meat is generally recognized.

The true test of the value of any food lies in what it can contribute

to the sum total of man's well being. Exact science has now replaced the fanciful ideas that carrots will make one beautiful—that crusts will make the hair curl, and that fish is brain food.

It is said that a certain number of people still believe that rheumatism may be avoided by carrying a red kidney bean or a horse chestnut in the pocket, and that others carry an onion in the hair for the relief of headache. Such practices are often founded on hearsay or adopted because of a single instance of a person who is believed to have had success with it.

It behooves us to avoid what can not be confirmed or tested by scientific proof, recognizing that health is largely a matter of judicious combination of fresh air, work or exercise, recreation, rest and food of suitable kinds and in sufficient amounts.

Widespread Malnutrition Reported by Health Council

At least 20 per cent and, according to some estimates 33 per cent, of the school children of the country are suffering from malnutrition, as general physical under-development is commonly designated, says the Advisory Committee on Foods and Nutrition of the National Child Health Council in a report published by the United States Public Health Service, which co-operated in its preparation.

Malnutrition, continues the report, is not confined to any one class or race; in some cities it is apparently as prevalent in the homes of the well-to-do as in those of persons of more limited means. The condition is evidenced not only by weight and growth records but also by listlessness, lack of color, dullness, and sometimes by restlessness and irritability.

Environmental conditions which interfere with sufficient sleep, lack of fresh air, and even constant nagging may cause under-development, and their correction may result in remarkable gains, says the Health Service in discussing malnutrition.

Cases of malnutrition that do not yield to simple corrective measures may require long medical supervision, and in any event, preventive measures are much better than curative ones, continues the Service. Health education in the schools will go a long way toward preventing malnutrition, not only in the pupils themselves, but will also, if the results are brought energetically to the attention of parents, usually react to the benefit of younger children of pre-school age. And the younger the child, the more easily are proper health habits learned and the more valuable they are.

Health education may also be

spread by well qualified speakers, by magazine articles, moving pictures, health plays, and exhibits that vividly bring home the results of malnutrition and the often amazing improvement derived from corrective measures.

In this connection may be instanced the news just received by the United States Public Health Service of the very marked success of a nutrition exhibit sent by it to Brazil as a part of the international centennial exposition recently held at Rio de Janeiro. This exhibit consists of two tables, at each of which two large dolls, supposed to be 10 years of age, sit at dinner. The meals spread for them look equally appetizing. One of them, however, includes no milk, no green vegetables, and no fresh fruit. The dolls at this table are a little better dressed than those at the other table; but their faces, though they still show evidences of former beauty, are colorless and their eyes are dull and are underlined heavily with dark half-moons. The dolls at the other table, on the other hand are rosy cheeked, bright and laughing.

The effect both on parents and children was very striking. Day after day the space before the exhibit was crowded by mothers or teachers, pointing to wide-eyed children the difference in the appearance of the children, who drank milk and ate proper food and those who did not. And a very large proportion of the adult visitors came back again and again, bringing other children with them.

Hospital Bed Capacity of New York City

Dr. C. E. Banker has presented in the January issue of the monthly *Bulletin* of the New York City Department of Health an article on the hospital bed capacity of the city. Study of the files of the Division of Institutional Inspection show that there are 216 hospitals in greater New York with a bed capacity of 44,793. Twenty-five of the hospitals are public, 121 semi-private, and seventy private. The public hospitals have 24,288; the semi-private 18,767; and the private 1,738 beds. Manhattan has more hospital beds than Brooklyn, Bronx, Queens, and Richmond combined.

Attention is called to the bureau maintained in the office of the Commissioner of Health during the 1918 influenza epidemic which obtained, daily, from the hospitals of the city information regarding the number of vacancies which they had, and in turn

informed both lay and professional inquirers where beds might be found for those in need of hospital treatment. If some such system were in operation at present, handling information regarding the number of beds available for various types of cases at the hospitals, it would do much to correct the present situation in which some hospitals are often overfilled and obliged to resort to makeshift accommodations while others have too many of their beds vacant.

A classification of the number of beds available for special diseases follows:

For—	Bed Capacity
Women and children (including maternity hospitals).....	3,680
Mental and nervous diseases (including mental defectives).....	10,523
Cancer and allied diseases.....	201
Contagious diseases.....	2,317
Incurable and chronic cases (exclusive of tuberculosis).....	1,613
Tuberculosis.....	2,495
Diseases of eye, ear, nose, and throat.....	639
Orthopedic defects.....	435
Public health service and care of soldiers, sailors and marines.....	3,093
Convalescents and those on special diet.....	88
Diseases of the digestive system.....	51
Special study of selected diseases.....	60
	25,180

The difference between the total bed capacity of the city (44,793) and those found in the special hospitals (25,180) should represent the "general" bed capacity of the city. It must be remembered, however, that any such classification is very difficult to make and that many of the small private so-called "general" hospitals would have to close if it were not for the disproportionately large number of maternity cases that they handle.

Scholarships for Nurses

The American Child Health Association has offered a series of scholarships for nurses for the school year of 1923-24 and for the summer schools of 1924. The scholarships are designed for nurses with experience who are especially interested in furthering the cause of child health through nursing.

Study may be carried on in colleges, normal schools and university departments of nursing, in post-graduate courses in obstetrics, pediatrics and orthopedics in schools of nursing, in practical experience in prenatal, obstetrical, infant the subjects and standardization of method having to do with both pre-school and school work.

Awards for the fall courses are to be made this month. Information can be obtained from the Association by a request sent to 370 Seventh Avenue, New York City.

Organizing to Salvage the Mental and Nervous Derelict

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requires the closest kind of observation and study as to the causes of epilepsy, the possibility of controlling it by medication or other means, but a mental condition as well, for which the environment is mainly responsible. It may positively be asserted that removal to an appropriate institution with proper medical care would solve the nervous manifestations, since the conduct disorder is a superimposed phenomenon and not inherent in the epileptic disorder itself. Unfortunately, existing public institutions are overcrowded, and the father has not the means to send the boy to a private institution.

Case 4.—S. A., a young girl, age twenty, born in Syria, had a public school education and is employed as a milliner. About a month ago she was reproved by her forelady for spoiling a piece of work. She became hysterical and cried. Although it was later proved that a mistake had been made and that another girl was to blame, her attitude did not change. She continued to be nervous, cried and shivered. On occasions she felt her fingers were stiff and she could not move them. She rested at home for two weeks but at the end of this time could not resume work. She was annoyed by noises on the street, lost her appetite, felt nauseated and vomited frequently. She worried about her mother who is in poor health. An offer was made to send her to the country but she refused to go because the food there is not "Kosher." A situation like this is one toward which the physician is bound to feel great sympathy. A young girl of pleasant personality and intelligent, is face to face with a serious problem in her life. It will be easily understood that such a trifling occurrence in the shop could not produce such marked nervous phenomena and that the real cause lies deeper. In other words, speaking psychoanalytically, there has occurred a shifting of the center of gravity from unconscious motivation to conscious thinking and that prolonged psychological labor will be required to unearth the hidden forces which brought about this nervous condition. The existing clinics are totally inadequate to meet such wants since for the treatment of such conditions a staff of highly trained psychotherapists would have to be employed. Yet it is clear that it is the duty of the community to take care of nervous patients as well as of mental cases.

A problem arising in connection with mental cases among Jews as well as others concern those immigrants who shortly after arrival in this country become insane; if committed to a state hospital, they are liable to deportation, a procedure which brings immense grief and misery to the family of the afflicted. This applies particularly to those patients who are almost sure to recover within a few weeks or months.

One of the most serious difficulties about which help is often sought relates to the problem of the abnormal child. Too often the crux of the situation is the lack of an intelligent and sympathetic attitude towards the child's shortcomings, a failure to appreciate the needs in the individual case, and the lack of an earnest desire and effort to co-operate in the correction of the existing bad habits. This is particularly true of immigrant parents of native-born children.

Advice is frequently sought at mental hygiene clinics in reference to domestic difficulties of various kinds. These require painstaking care in studying the multitudinous problems presented. It is evident that only a thorough-going analysis of all the factors in given cases can afford a sure basis for useful advice and service. There are numerous borderline cases, mild temporary mental disturbances, cases of psychoneuroses whose lives are rendered miserable unless proper and timely treatment can be given.

Only a small number of the insane actually require removal from their homes and confinement in an institution. The screaming, violent maniac, the paranoiac who is homicidal, and the melancholic who would take his life, stand in need of commitment. The majority of cases of the dementia praecox group, nearly all mildly depressed cases and the large group of borderline cases, the conduct disorder group, etc., can best be treated at home with the aid of such means which a mental hygiene center should supply. Indeed, in a number of cases of dementia praecox, for instance, it can be shown definitely that removal to a hospital or sanatorium is distinctly disadvantageous. These patients are commonly introspective and shy, lose contact with the world, and retreat within themselves where they live in a world of fantasy far removed from the realities of life. If to this psychic anomaly is added the strangeness of an external situation, there is produced an intensification of the "unreality complex" from which they suffer. There are mildly depressed patients, who when transferred to a detention hospital or state institution, suddenly become mute and pass into a state of stupor lasting for months. This results from the severity of the shock of the changed external situation. In a case of a recurrent benign stupor the discussion

in the patient's hearing of his commitment resulted in a practical recovery within a few days; the fear of commitment was strong enough to overcome the apathy of the stuporous state.

It is essential to separate the symptoms inherent in a disease from those accidental and concomitant, brought on by the stupidity and ignorance of those in charge of the patient. To rush a patient to an institution on the advice of an irresponsible medical attendant is a serious blunder. Instances could be cited in which the outraged finer sensibilities of a patient have never been recovered from and that for years a stubborn hatred toward the family was practically the only outstanding mental abnormality remaining. Happily, modern psychiatry has profited by the lessons of experience and today we find a progressively larger number of mental cases taken care of in out-patient clinics than ever before. The state hospitals have been paroling an increasing number of patients each year, fully realizing that if the patient is to "recover" he must do so within his original environment, and in the milieu which gave origin to his symptoms.

It may be asked, of what use is a hospital after so much has been said in disparagement of hospitalization of patients? The answer is that in psychiatric practice there frequently arise situations in which temporary detention becomes imperative. Often a case can best be studied only when under continued observation in a hospital over a period of days or weeks.

Five elements are necessary for the proper organization of mental hygiene service to a community. These are: (a) an all-year educational campaign, (b) adequately manned clinics, (c) a convalescent home for mental and nervous patients, (d) a workshop equipped for occupational therapy, and (e) a psychiatric or mental hygiene institute functioning in conjunction with the other items and serving as the mental hygiene center of the community. Some of these items have already been established in various communities. However, until a complete program is initiated, whether through the efforts of public authorities or private citizens, or through a combination of both, the attempt to serve mental and nervous cases will continue to be seriously hampered.

Vitamin B as a Factor in Nutrition

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the best way to explain the relationship is by way of illustration. A dog is fed a purely artificial mixture of food-stuffs, this mixture containing everything that the animal requires for proper nutrition *except* vitamin B. The amount of food thus offered is carefully weighed each day in order to determine the exact amount that is eaten. For several days the dog eats immediately all of this food mixture when offered. After a period of from five to fifteen or twenty days, depending probably upon the amount of vitamin B stored in the tissues of the animal, a lack of interest in the food is displayed; it may be left in the cage for three or four hours, but the animal either will eat only a part of it or will refuse it absolutely. If, at any time after the loss of appetite has revealed itself, the dog be given a sufficient amount of some source of the substance which the food mixture lacks, namely vitamin B, the appetite is completely restored, and the animal eats ravenously the same food that had previously been refused. This result cannot be due to an altered taste of the food offered, for the vitamin may be placed in the stomach by means of a stomach tube and the same result obtained. Furthermore, the taste of the food may be altered by mixing with it a small amount of meat extract which does not contain vitamin B: when this is done the animal may eat the changed food mixture one day but refuse it thereafter. Only the administration of a sufficient amount of some source of vitamin B to such an animal can bring back the desire to partake of food. As if this were not sufficiently striking, it has been learned further, that the amount of vitamin B required to restore the appetite to such an animal and the amount which must be eaten daily to maintain the appetite without failure, bear a very definite relationship to the size of the animal, if the size be estimated in terms of the body-weight: in other words, the quantity of vitamin B given is important. When the dog is offered this vitamin B-free food mixture and daily given apart from it a sufficient amount of the vitamin, the desire to eat may be maintained without failure for many

months; animals have been fed successfully in this fashion for over six months. These experiments, quite apart from the data they furnish regarding the relationship between vitamin B and the appetite, constitute a complete demonstration of the vitamin hypothesis.

The problem of combating anorexia, i. e., loss of appetite, is one that confronts the physician, and nurse, as well as the dietitian who has the feeding of an institution or a family of active children as her responsibility. Now it would involve taking an unwarranted step in reasoning to conclude from the demonstrated relationship between loss of appetite and vitamin B, that a lack of this vitamin is always the cause of the loss of appetite. There are doubtless many causes of anorexia other than vitamin B deficiency. Nevertheless the rôle, which this vitamin plays in maintaining the desire to eat, has some very definite applications.

Many marasmic infants, undernourished, apparently unable to thrive on the food offered, have shown remarkable improvement in their general condition and a resumption of growth as a result of the addition to their foods of liberal amounts of materials rich in vitamin B.⁶ While it is difficult in such cases to conclude absolutely that the appetite has been affected, the behavior of the child after receiving the vitamin, particularly the new interest it displays in the bottle and in feeding, suggests that the therapeutic agent, namely vitamin B, has acted to restore the desire to eat.

It is quite likely that the administration of vitamin B to convalescents who have lost the desire for food would prove beneficial to such individuals. When it is realized that most of the common foods which are included in the bill of fare followed in feeding sick individuals and convalescents, are poor in their content of vitamin B, and that the absence of this dietary essential from the food over any extended period affects the appetite, greater care will be taken by physicians and dietitians to include liberal quantities of good sources of this vitamin in the menus that are prepared for the sick and the near-sick.

Just how the continued absence of vitamin B from the dietary brings about a loss of appetite is not easily explained. It has been suggested that the vitamin functions to stimulate the various digestive glands to activity, but careful experiments to determine whether such is the case have given negative results.⁹ Another possibility is that the so-called hunger contractions, which the normal empty stomach exhibits at intervals, disappear or are markedly influenced when vitamin B is absent from the food for any protracted period. Experimental investigation of this possibility is as yet unfinished,¹⁰ but the observations already made suggest that while the normal motility of the stomach is affected after a time by vitamin B deficiency, this relationship is not intimate enough to warrant the conclusion that disappearance of hunger contractions is the immediate cause of appetite failure, the lack of vitamin B serving as the remote cause.

The field of research into the physiology of vitamin B is new and should therefore hold some promise of interesting discoveries for the future. "The greatest good for the greatest number," which has been said to be one of the ideals of a democracy, will result from such discoveries, however, only when a cooperation of physiologist, physician, nurse, dietitian, public health worker, and all who serve in related fields to promote the physical well being of the nation's citizens, is realized.

Chemists Suggest Safe Name for Wood Alcohol

The attempt to establish the name methanol in place of wood alcohol, for the better protection of those not educated along chemical lines, has received impetus by a recent action of National Wood Chemical Association. The Board of Governors has adopted a resolution recommending the use of the former term.

Jewish maternity hospitals in New York City provide facilities for the birth of three thousand babies annually. The report of the Federation for the Support of Jewish Philanthropic Societies states that all beds are constantly full.

6. M. H. Keith and H. H. Mitchell: *Amer. Jour. Physiol.*, lxx, 128, June, 1923.

7. W. G. Farr: *Jour. Biol. Chem.*, xlv, 255 (1920).

8. R. Cowdell: *Amer. Jour. Physiol.*, lvii, 420 (1921); *Proc. Soc. Exper. Biol. Med.*, xix, 282 (1922); *Ibid.*, xx, 268 (1923).

9. W. H. Eddy and J. C. Roper: *Amer. Jour. Dis. Child.*, xiv, 189 (1917). Also a recent personal communication to the writer from Dr. Eddy.

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11. G. R. Cowdell and H. J. Duvel, Jr.: unpublished observations.

A Scheme for Classification of Delinquency in Children

(Continued from Page 514)

he has not been mentally competent to proceed with his education. He remains stationary in one class and there has been a marked increase in weight for the past few years.

Examination reveals a boy showing findings of endocrine dysfunction in that he shows marked obesity, weighs 192 pounds and is only five feet one-half inch in height. There is underdevelopment of the sex glands. He frequently complains of weakness and of headaches. These headaches are considered to be due to the glandular deficiency present.

Psychological examination reveals a dull normal individual.

The boy has been placed on pituitary extract in a therapeutic attempt to supply him with the deficient substance from this gland. Since treatment was started very late, there has not been any improvement in his condition.

Later reports state that he continues unable to progress further in school; is very lazy, shiftless and apathetic. His headaches, however, have become less frequent following treatment.

Psychotic Group

Case 8.—Boy, age 15 years, was committed to State Home with a charge of breaking, entering, and assault. Mental examination revealed the boy as very listless. He spoke of his serious delinquency in a matter-of-fact fashion; stated he was not sorry for the man he black-jacked. He admitted hearing voices. These voices told him to steal and rob. They said to him: "You live here in misery and there are lots of people with money who won't help you. Why don't you go and get some?" He thought the people talked about him and made fun of him. At times, he felt somebody was controlling his mind and that certain people could make him do anything they wanted. He imagined that several boys could influence him and tell what he was thinking about.

Father has a criminal record and one brother is delinquent. Father deserted home and the family was destitute and poverty stricken. This case showed many psychotic features of schizophrenic type, and for this reason a transfer to the State Hospital was recommended, where the patient could be cared for suitably while he was being further studied.

These cases are cited to illustrate

briefly many of the essentials of the treatment, chiefly of the personality group. To follow our classification, we should indicate measures for adequate treatment of the remaining groups. For instance, the organic group requires careful neuropsychiatric study and observation where specific therapeutic measures could be instituted: for example, the treatment of syphilitic conditions by means of arsenical preparations.

The mental deficiency group requires, first of all, a careful diagnostic study regarding trainability, special abilities and disabilities. Later institutionalization may be indicated with appropriate colonization and parole systems.

The endocrine group may be helped by specific organotherapy as indicated following careful laboratory and metabolic investigations.

The incipient psychopathic group will always require observation in well equipped psychopathic wards. The need for a children's psychopathic ward may be met sometime in the near future in our neuro-psychiatric department. Here we should have all resources of medicine at our command to secure a complete diagnostic survey of the patient such as is offered by thorough physical, therapeutic, x-ray, endocrine, laboratory, biochemical, psychological, and psychopathological studies.

Preventive measures of maladjustment in children with any delinquency will only be possible through thorough publicity concerning the questions involved. Organized neuropsychiatric examination of school children should play an important role in the prevention of delinquency. This would enable us to make a complete study of each individual at the very beginning of their change in conduct when treatment would be most favorable. The institutional care of delinquents has not been referred to, although this constitutes an important part of the scheme for treatment. Our State Homes with vocational reorganization, self-government, and Boy Scout activities certainly should be productive of results. A superintendent of a large state home for boys, informs the author that whereas several years ago, before the above changes were made, one out of two boys paroled was later returned, at present only one out of ten boys paroled returns to the institution.

Public Health campaigns, with the establishment of well equipped court clinics, such as the one we have in Philadelphia; also out-patient clinics and children's observation wards could play a definite part in the winning fight against delinquency and all allied problems such as are presented by mental diseases.

TABLE 1.—DELINQUENCY IN CHILDREN

Types of Delinquency	Preventive Measures and Treatment
Personality Defects Group	Organized Neuropsychiatric examination of school children.
	Re-education of parents regarding child psychopathology.
	Careful habit training—Study of role of situation.
Mental Deficiency Group	Mental Hygiene of the child to be taught in Normal Schools and Colleges.
	Careful diagnoses and early recognition.
	Analytic examination regarding study of: Ability, Disabilities, Trainability. Institutionalization—Colonization—Parole.
Endocrine Group	Appropriate legislation regarding Marriage, Sterilization, etc.
	Early diagnoses and specific Organotherapy.
Organic Group	Preventive medicine.
	Symptomatic and safeguarding therapy.
Psychotic Group	Crusades against syphilis.
	Mental Hygiene. Extension of education to schools and colleges.
	Out-patient Neuropsychiatric clinics.
	Court Clinics to afford early treatment, etc.

We feel that Table 1 constitutes a summary of this question, especially regarding methods for treatment and prevention.

Legislative Measures to Prevent Blindness

The National Committee for the Prevention of Blindness is responsible, according to a recent report, for a diminution in the number of the blind by five thousand during the period from 1910 to 1920. Through the activities of this organization state and local authorities have been interested to concern themselves with protecting the eyes of children in schools, with eliminating certain eye hazards in industry, and particularly with introducing legislative measures to save the 25 per cent of needless blindness attributable to the lack of prophylaxis at birth.

Cantilever Stores

Cut this out for reference

Akron—11 Orpheum Arcade
 Albany—Hewett's Silk Shop, 15 N. Pearl St.
 Allentown—907 Hamilton St.
 Altona—Bendheim's, 1302 Eleventh Ave.
 Asheville—Pollock's
 Atlanta—126 Peachtree Arcade
 Atlantic City—205 Boardwalk, Shelburne
 Baltimore—425 North Charles St.
 Bangor—John Conners Shoe Co.
 Berkeley—The Booterie
 Binghamton—Parlor City Shoe Co.
 Birmingham—218 North Fifth St.
 Bridgeport—W. K. Mollan
 Brooklyn—414 Fulton St.
 Buffalo—641 Main St.
 Butte—Hubert Shoe Co.
 Canton, O.—H. M. Horton Co.
 Cedar Rapids—The Kilian Co.
 Charleston, S. C.—J. F. Condon & Sons
 Charleston, W. Va.—John Lee Shoe Co.
 Charlotte—221 Piedmont Bldg.
 Charlotte—130 E. Randolph St. Room 302
 Chicago—1059 Leland near Broadway
 Cincinnati—The McAlpin Co.
 Cleveland—Granger-Powers, 124 Euclid Ave.
 Colorado Springs—Wulff Shoe Co.
 Columbus, O.—104 E. Broad St. at 3rd.
 Dallas—Yolk Bros.
 Danville, Ill.—Cavanaugh & Meyer
 Denver—224 Foster Bldg.
 Des Moines—W. L. White Shoe Co.
 Detroit—11 E. Adams Ave.
 Duluth—107 W. First St. near 1st Ave. W.)
 Elizabeth—Gig's, 1053 Elizabeth Ave.
 Elmira—C. W. O'Shea
 Erie—Weschler Co. 910 State St.
 Evanston—North Shore Bootery
 Fall River—O. F. Sullivan
 Fargo—Hall-Allen Shoe Co.
 Fort Wayne—Mathias App's Sons
 Fort Worth—Washburn Bros.
 Grand Rapids—Herpolsheimer Co.
 Greenville—Pollock's
 Hagerstown—Bikle's Shoe Shop
 Harrisburg—26 No. 3rd St. Second floor
 Hartford—88 Pratt St.
 Haverhill—McGregor's, 21 Washington Sq.
 Holyoke—Thos. S. Childs, 275 High St.
 Houston—806 Queen Theatre Bldg.
 Huntington, W. Va.—McClabon-Diehl
 Indianapolis—L. S. Ayres & Co.
 Ithaca—Rothschild Bros.
 Jacksonville—Golden's Bootery
 Jersey City—Bentley's, 411 Central Ave.
 Kalamazoo—The Bell Shoe House
 Kansas City, Mo.—109 Arham Bldg.
 Kingston—E. T. Stille & Son
 Knoxville—Spence Shoe Co.
 Lancaster, Pa.—Boyd's, 5 E. King St.
 Lawrence, Mass.—G. H. Woodman
 Lewiston—Lamey-Vellehan, 110 Lisbon St.
 Lexington, Ky.—Denton, Ross, Todd Co.
 Lincoln—Mayer Bros. Co.
 Long Beach, Calif.—Eagles' Bank Bldg.
 Los Angeles—585 New Pringates Bldg.
 Louisville—Boston Shoe Co.
 Lowell—The Bon Marche
 Lynchburg—Isbell-Bowman Co.
 Madison—Family Shoe Store
 Mansfield—Brownell Shoe Co.
 Memphis—28 No. Second St.
 Milwaukee—Brown Shoe Co.
 Minneapolis—25 Eighth St. South
 Mt. Vernon, N. Y.—A. J. Rice & Co.
 Nashville—J. A. Vanders & Sons
 Newark—597 Broad St. 2nd floor
 New Bedford—Olympia Shoe Shop
 Newburgh—G. A. C. Van Beuren
 New Castle, Pa.—229 E. Washington St.
 New Haven—153 State St. 2nd floor
 New Orleans—109 Baronne St. Room 200
 Newport, R. I.—Sullivan's, 226 Thames St.
 New Rochelle—Ware's
 New York—14 W. 40th St. opp. Public Library
 Norfolk—Annes & Bonnielle
 Oakland—285 Henshaw Bldg.
 Oklahoma City—The Foot Shop
 Omaha—1206 Howard
 Pasadena—378 E. Colorado St.
 Paterson—10 Park Ave. at Erie Depot
 Peoria—Lehmann Bldg. Room 29
 Philadelphia—1300 Walnut St.
 Pittsburgh—The Rosenbaum Co.
 Pittsfield—Wm. Fahey, 24 North St.
 Plainfield—M. C. Van Arsdale
 Portland, Me.—Palmer Shoe Co.
 Portland, Ore.—353 Alder St.
 Poughkeepsie—Louis Schenberger
 Providence—The Boston Style
 Reading—Sig. S. Schweitzer
 Richmond, Va.—Seamour Nicle
 Roanoke—L. Bachrach Shoe Co.
 Rochester—257 Main St. 3rd floor
 Rockland—D. J. Scott & Co.
 St. Louis—516 Arcade Bldg. opp. P. O.
 St. Paul—181 St. Frederic Hotel
 Sacramento—208 Ochsen Bldg. K near 7th
 Saginaw—Goeschel-Kulper Co.
 Salt Lake City—Walker Bros. Co.
 San Diego—The Marton Co.
 San Francisco—Phelan Bldg. Arcade
 Santa Barbara—Smith's Bootery
 Savannah—Globe Shoe Co.
 Schenectady—Parson & Hall
 Scranton—Lewis & Reilly
 Seattle—Baxter & Baxter
 Shoreport—Phelps Shoe Co.
 Sioux City—The Pelletier Co.
 Sioux Falls—The Bee Hive
 South Bend—J. Howarth Store
 Spokane—The Crescent
 Springfield, Mass.—Forbes & Wallace
 Stamford—L. Speike & Son
 Syracuse—121 West Jefferson St.
 Tacoma—355 No. 11th St. 1st floor Trust Bldg.)
 Toledo—LaSalle & Koch Co.
 Topeka—The Pelletier Store
 Trenton—H. M. Voorhees & Bro.
 Troy—35 Third St. 2nd floor
 Tulsa—Lyons' Shoe Store
 Utica—135 Geneva St. 2nd floor
 Washington—1345 F Street
 Waterbury—Howland-Hughes Co.
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The Cripple's Place In Society Through the Ages

(Continued from Page 512)

an evil spirit, the root of our own descriptive word "dwarf." The Romans, among whom theology and its attendant fears and superstitions were at no time fully developed, regarded a human monster, not as the seat of evil but rather as an ill omen, a warning. This is attested by the origin of the word "monster" from "*monere*," to warn, a warning against further or similar transgressions.

Modern Medical Treatment

Throughout the ages we thus note that the cripple was neglected where he was not actually destroyed. A gradual change began to take place during the last century. The number of crippled began to increase, largely through accessions to its ranks of the acquired varieties due to tuberculosis and rickets. Where the mode of living changed from the healthy village life to that of crowded cities the ravages became great. It is estimated that in Germany at present the percentage of deformed is 1.48 per thousand. With such a vast army and the keen struggle for existence something must be done to change them from mere consumers to producers, or from beggars to taxpayers. It was recognized that only through a union of pedagogic and surgical work could an amelioration of this condition be brought about.

München took the lead in this matter in 1832. It established the "Erziehung—Unterrichts und Bildungsanstalt für Krupfelhote Knaaben." In 1884 it became a royal institution. France followed in 1845, England in 1851, then other European countries, and America in 1862. At all of these institutions grade school instruction and manual training are combined. In our country there are three state institutions for crippled children. The Minnesota State Hospital for crippled and deformed children, The Massachusetts Hospital School, and The New York State Hospital for the care of crippled and deformed children. Iowa and Indiana are now supporting progressive institutions.

Orthopedic clinics and hospitals now abound everywhere where the best of care is given the unfortunates, and orthopedics is recognized as a legitimate branch of surgery.

Homes for Cripples

Connecticut.—Newington, Virginia

T. Smith Home, 140 beds; Wilton, St. Elizabeth's House, 30 beds.

Illinois.—West Chicago, County Home for Convalescent Children, 70 beds; Chicago, Home for Destitute Crippled Children, 118 beds.

Maryland.—Orange Grove, St. Gabriel's Home, 50 beds.

Massachusetts.—Hyde Park, New England Peabody Home, 40 beds (educational).

Missouri.—St. Louis, Summer Home for Crippled Children, 20 beds.

New Jersey.—Englewood, Daisy Field's Home and Hospital, 20 beds.

New York.—Garden City, House of St. Giles the Crippled, 64 beds; New York, Darach Home for Crippled Children, 18 beds; Southampton, Home for Crippled Children, 30 beds.

Ohio.—Cleveland, Holy Cross House, 20 beds.

Pennsylvania.—Allentown, Good Shepherd's Home, 56 beds; Philadelphia, House of St. Michael (colored cripples), 37 beds; Pittsburgh, Industrial Home for Crippled Children, 50 beds.

Orthopedic Hospitals

Georgia.—Atlanta, National Surgical Institute, 22 beds; Scottish Rite Hospital for Crippled Children.

Maine.—Portland, Children's Hospital, 52 beds.

Michigan.—Detroit, Michigan Hospital School (educational).

New Jersey.—Orange, New Jersey Orthopedic Hospital and Dispensary, 16 beds.

New York.—New York, New York Orthopedic Hospital and Dispensary, 242 beds; New York Hospital for Deformities and Joint Diseases, 72 beds; Port Jefferson, St. Charles Hospital for Crippled Children, 300 beds; Rockaway Beach, Neponsit Beach Hospital for Children, 120 beds.

Massachusetts.—Boston, Boston Children's Hospital.

Missouri.—St. Louis, St. Louis Children's Hospital.

Ohio.—Elyria, Elyria Memorial Hospital; South Euclid, Rainbow Hospital for Crippled Children, 86 beds.

Pennsylvania.—Philadelphia, Pennsylvania Orthopedic Hospital and School of Mechano-Therapy; Philadelphia Orthopedic Hospital, 136 beds.

Washington.—Seattle, Children's Orthopedic Hospital, 60 beds.

Educational Institutions

Massachusetts.—Canton (state), Massachusetts Hospital School, 300 beds; Hyde Park, New England Home for Crippled Children, 40 beds; Boston, Industrial School.

Michigan.—Detroit, Michigan Hospital School.

New York.—New York Crippled Children's East Side Free School, 120 beds.

Pennsylvania.—Philadelphia, Widener Memorial Industrial Training School for Crippled Children, 112 beds.

Illinois.—Chicago, Spaulding School for Crippled Children, 300.

Miscellaneous Institutions

New York.—Tarrytown, "Robin's Nest," crippled children, 22 beds.

New York.—Society for the Relief of the Ruptured and Crippled, 200 beds.

State Institutions

New York.—West Haverstraw, New York State Hospital for Crippled, 125 beds.

Massachusetts.—Canton, Massachusetts Hospital School, 300 beds. (educational). Now General Children's Hospital.

Minnesota.—St. Paul, State Sanitarium, 230 beds.

Nebraska.—Lincoln, Nebraska Orthopedic Hospital, 100 beds.

Iowa.—Iowa City, 50 beds.

States giving state aid are as follows: Maine, (Portland) 65 beds; Texas, (Galveston) 30 beds; North Dakota, (Fargo), 5 beds; Montana, (Helena), New Jersey, (Newark) 56 beds; Pennsylvania, (Pittsburgh) 25 beds; Michigan, (Detroit); Wisconsin, (Milwaukee); Illinois, (Chicago); and Ohio, (Cleveland).

Mental Capacity of Japanese Children

Prof. Lewis M. Terman and his assistant, Prof. M. L. Darsie, of Stanford University, are making a thorough scientific investigation of the mental, moral and physical characteristics of the Japanese children in California. A preliminary report on the mental condition has already been issued.

According to this report, "the Japanese children were, in general, markedly inferior to American in those tests in which language plays an important part, and equal or superior in tests not of the language type. In tests of reasoning power, apart from language, the Japanese children were equal to Americans, and in tests of rapid learning markedly superior to Americans."

The conclusions reached are:

"The Japanese in California are as a group somewhat inferior in intelligence to northern Europeans, but markedly superior to southern Europeans. In application and capacity to learn, they are probably superior to any European race in America, as well as superior to native Americans. In social-moral traits, they are fully equal, and in many respects probably superior to the average child of other races in California, as judged by their teachers, this statement being true with respect to native American children as well."

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Not only does it assist regular intestinal activity, but its vitamin content is highly beneficial, and experiments have shown that it also helps to produce a definite leucocytosis.

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Home Nursing Care of Paralysis Cripples

(Continued from Page 505)

or is kept under close watch in bed during the first few weeks may mean that the home worker will have to spend months struggling with twisted wrists or ankles, whereas these deformities could have been prevented if proper nursing care had been taught and given while the patient was in the hospital during the acute stages.

Not only the laity but also professionally trained people have failed to recognize the importance of aftercare in this disease. Within the past year we have been asked to give care to several children whose deformities developed while they were in hospitals. One, a thirteen-year-old boy, was kept for six months in a big hospital deservedly famous for the excellence of the work of its attending staff, its interns, and its nurses. This boy was the oldest child of a widowed mother and for this reason was kept by the hospital much longer than any child is kept under ordinary circumstances. When referred to us, his skin was in good condition, his nutrition was fair, but the entirely preventable deformities of his arms, hips, and knees took months of patient, painful effort to reduce. Now he is wearing braces and attending a special school for crippled children and the surgeon in charge hopes that further muscle training and exercise will prevent the necessity of any surgical interference. Time alone will tell. This youngster faces a life of grinding poverty. Already crippled by economic conditions quite beyond his control, the lack of foresight and intelligent observation on the part of the hospital staff (for we can hardly place the blame on any one of the responsible groups) have tremendously increased his chances of an unhappy future. This unintentional neglect has caused preventable suffering, waste of time, the loss of precious schooling and of potential income, for it will be several years before he can even think of securing his working papers and he is the oldest child of a widow.

The first after-care treatment consists of rest in correct or normal position. Fatigue and strain on the affected parts must be avoided at all

costs. Some physicians prescribe this for periods of a year or more. This does not mean absolute immobility in fixed positions or no passive exercises, but patients are encouraged to keep the paralyzed parts in normal position and free from weight or strain by means of simple splints, plaster shells, padding, sandbags, or any device that will not cause unnecessary pain. This treatment hastens the spontaneous recovery of the muscles involved and prevents the over-

should be worked out for it. Needless to say, it is extremely difficult for any nurse, whether or not she has had special training in infantile after-care, to give proper treatment to these children unless they are under the constant supervision of an orthopedic surgeon, although many of the more minute muscle examinations and almost all of the exercises are left for her to work out. And as experience has proved that special training in this work is necessary for nurses, it

is equally true that special orthopedic experience is necessary for the physicians.

Salt baths, very gentle, superficial massage, and external heat, usually applied by means of electric bakers, help to arouse the circulation and tone the muscles for the exercises, which should be graded to the strength shown by the sick muscles. In addition to these exercises—which have to be made into games with very little children but which may be given to older children as one gives gymnastic exercises in the school room—the education of the child and the preparation for his future must be considered. In bad cases, permanent braces for the arms or legs are frequently indicated for months or years. Then the children must be sent to school and it is better for them and their parents if at first they have the advantage of going to a school especially equipped and planned for crippled children. Every crippled child should be treated as if he were a normal member of society; ex-

cuses should not be made for him nor too much unwise pity shown. In a school where every child is handicapped, it is easier to give a crippled child a fair start. Infantile paralysis, fortunately, rarely affects the mentality of the child; consequently, he is almost always able to make his grades in our public schools. But his handicap, whether it consists of a lame arm or leg, makes special training necessary. Occupational therapy is very valuable for our shut-in cases when graded exercises for the hands and arms are necessary, but occupational therapy that is not a true vocational train-



From the first the kind of treatment is emphasized that enables a patient to take care of himself. And positions are prevented which increase or fix deformity.

stretching of the weakened muscles, as well as the resultant contractions of the opposite groups of muscles. A very important part of the treatment is the patient's nutrition. Many of these children have capricious appetites, others are allowed to eat altogether too much, and it is as difficult to work over the emaciated youngster who apparently has no muscles left, as it is to try to teach an overweight child to use crutches or braces properly.

Once the soreness has left the limbs, a thorough muscle examination should be given the entire body to find where the affected part is, and exercises

ing has distinct limitations with children who have possibilities of self-support. In a special school, under the constant supervision of teachers equipped to handle and plan for them, the crippled children have a much better chance to prepare themselves for the struggles of industrial life than in the average public school.

Sickness Means Social Defeat

An attack of acute poliomyelitis has its economic and social side quite as much as its medical and educational. Its cost in the average working man's family is just enough to keep that family hovering on the borderline of poverty for years. Treatments, braces, crutches, sometimes a wheel chair, sometimes a Bradford frame, can best be secured if purchased through a central brace fund. The parents may be permitted and encouraged to pay in installments. An experience of six years has shown us that very few people take dishonest advantage of their loans. Our money comes back to us in small amounts but it comes back steadily.

Far more serious than the expense, however, is the long-drawn-out treatment with its slow, almost imperceptible results. Frequently parents and patients alike lose courage. The temptation to change doctors and to experiment with advertised treatments is a big one and just as we think a child is showing some improvement and is really making progress, we are dismayed to discover that the parents have put the savings of years into an electrical machine or a three hundred down payment to a practitioner who guarantees a cure in almost less time than we can take to think about it. Cases of this sort almost invariably come back to us much the worse for wear.

Not long ago we were asked if something could not be done about a little girl of six who left the hospital with a foot which showed a marked tendency towards serious deformity. The physician at the hospital had recommended the right treatment; the visiting nurse had been at the home before the child was dismissed, explained the care to the mother and secured, as she thought, her interest and help. A fellow-workman, however, had persuaded the father that another doctor knew more than the first. The second doctor recommended a clinic which would have given the child exactly the same treatment that it might have received at the first clinic recommended; but while the family were weighing the merits of these two different clinics in their

minds, a neighbor came in with a flashily-printed advertisement issued by a man who guaranteed to cure almost anything under the sun; consequently these parents, with borrowed money, have taken the little girl to the advertiser and for the time being, have dropped both clinics. The nurse, in speaking of this case, said regretfully: "The trouble is that we shall get that child back in three or four months and it will take us twelve months to straighten out a twisted foot that we could prevent tomorrow if the mother would only trust the child to proper hands." Ignorant people are so tragically credulous one minute; so hopelessly unteachable the next.

Cases like this are not happening as frequently as they were five years ago, which shows that we are making progress; and there is no comparison between the condition of patients who are put under treatment immediately after an attack in 1923, and those who had the disease in 1912, 1915, or 1916, as the case might be. Some time ago we asked several physicians who had been seeing hundreds of these children, what they considered the chief contribution of this home nursing care. Unanimously their answer was that by preventing many deformities, it had reduced the amount of surgical interference that had previously been taken for granted in certain types of infantile cases, and had aroused a very intelligent interest on the part of parents, relatives, teachers, social workers, family physicians, and others which had carried a distinct educational advantage and had furthered the treatment of all crippled children.

As we study the cases from year to year, our failures seem to fall into two groups: (1) Those in which the disease was so virulent that the cells in the spinal cord were entirely destroyed and no nerve-power whatsoever seems to have returned to the weakened muscles; and (2) a somewhat larger group in homes where the parents are too ignorant or too indifferent (or both), to be taught to give the treatments between visits. Lack of home control is just as obvious and just as serious a deterrent to the future welfare of a crippled child as it is in the treatment of a malnutrition child. When rest is prescribed and a child is allowed to scramble around on all fours throughout the day because the mother simply cannot keep him in bed; when a platform splint for a badly paralyzed arm or shoulder is absolutely necessary if the muscles are going to be

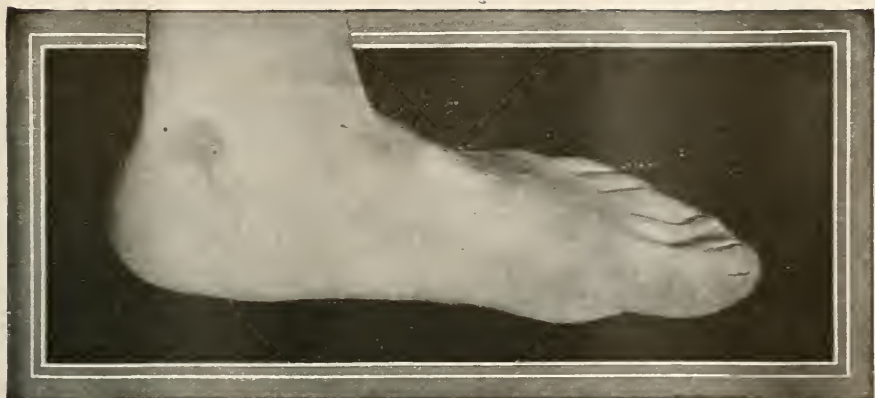
saved at all and after one wearing the child decides that he does not like it and will not put it on again, we long for a convalescent home large enough to take all crippled children whose parents are too weak (though neither vicious nor ignorant), to make their children do what is going to be best for their future welfare.

Mothers Save the Day

Our successful cases have been almost entirely in homes where parents—mothers particularly—were eager to do everything that they possibly could for their children. In one family where four children had poliomyelitis at the same time and where the mother had the entire care of a ten-room house with a family of twelve for which to plan, the daily baths and exercises required by two children who were severely paralyzed, were never once neglected. Consequently this family is going to have four self-supporting, and at least three able-bodied, young people a few years hence, whereas under ordinary conditions, with a weak or careless mother, seriously crippled children would have been the inevitable outcome.

Our special orthopedic service costs twice as much per visit as our general work, for the nurses require special training, much more time is spent in clinics, at the brace-makers, and in transportation, and most of the home treatments are long and fatiguing. Nevertheless, we are seeing daily youngsters who have been snatched from a possible life of helpless invalidism and who are being made into potentially self-supporting citizens; consequently we feel that this money has not only been well spent but that it is money put into a piece of research that may have very far-reaching consequences.

The long distances and the lack of better transportation facilities in Chicago have made treatment centers impossible, although in some cities they have been established and the results are good. At the time of writing, four nurses are spending a good part of every morning in four different public schools where there are special rooms for crippled children; one nurse is giving half-time to a treatment center to which the mothers bring their children and at which other patients receive muscle training; and one nurse gives one afternoon a week to a treatment center which, however, is successful only because the Association provides the transportation. Treatment centers are valuable, for they give the pa-



Severe Case of Static Flat Foot

is the cause of inefficiency and much bodily suffering. As a physician you will be interested in learning more about a most successful mode of treatment now used by thousands of successful practitioners in the treatment of weak or flat-foot, Morton's Toe, Metatarsalgia, Hallux Valgus, bunion, painful heel, weak ankles and other conditions where mechanical treatment is indicated.

Dr. Scholl's *Corrective Foot Appliances*

with proper foot-gear and corrective foot exercises usually bring quick relief to these conditions. There is an appliance especially designed for each condition. They are now placed on sale with leading shoe dealers and surgical instrument houses in every city.

Write us name and address of one nearest you and for the new pamphlet, "Foot Weakness and Correction for the Physician," including a chart of corrective foot exercises as recommended by the Medical Department, U. S. A.

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Regular Size, 12 for 65c
Hospital Size, 6 for 45c

(Additional thickness)

Kotex cabinets are now being distributed in women's rest rooms everywhere — hotels, office buildings, restaurants, theatres, and other places — from which may be obtained one Kotex with two safety pins, in plain wrapper, for 10 cents.

Comfort

KOTEX are cool in warm weather. They are of lasting softness. Made from Cellucotton and finest white gauze, they bring a new experience in comfort, and quickly become a requisite of milady's toilette. Far superior to makeshifts and other sanitary pads, Kotex have earned the favor of nice women everywhere. It is easy to buy Kotex. They are sold wherever women trade—in drug, drygoods and department stores. It is easy to take a supply in a handbag. Also they are easy to dispose of by following simple directions found in each box, and cheap enough to throw away.

Ask for them by name

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Cres, Neenah, Wis.

INEXPENSIVE, COMFORTABLE, HYGIENIC and SAFE — KOTEX

tients and the mothers of patients an opportunity to see the improvement or lack of improvement in similar cases. They also save the energy, time, and strength of the physiotherapist or other trained worker. Perhaps our annual Christmas party, which is rapidly becoming a Visiting Nurse Association tradition, takes the place of a treatment center to a very small degree, for every year mothers return with their children and become tremendously interested in youngsters whom they have not seen for twelve months. Frequently these mothers point out to us marked improvement which has come so gradually that we have hardly noticed it. Anything that helps to give the families a standard of comparison is always an asset, whether it is done by means of a Christmas party or by means of classes at a treatment center.

The home nursing care is never wholly a success unless the families want it and are sufficiently interested to learn to give certain treatments fairly well. Medical and nursing care can prevent much but they will never be able to overcome parental inertia or indifference.

Its Application Widens

Work with children who have had infantile paralysis has also taught us that muscle training can be used successfully in all sorts of paralyses, after sprains and fractures, and in almost any kind of pathological loss of function following disease or accident. We are being asked to organize classes for children with spastic paralysis; heart cases who need carefully-graded exercises are being referred to us, and in time, we believe that muscle training will take its proper place in any scheme of corrective gymnastics that is going to be used for sick and convalescent patients. Muscle training is not massage, it is voluntary effort on the part of the patient to perform certain motions and exercises worked out according to the needs of the part affected. It must be given only in selected cases. Muscle training must be a gentle, scientific and persistent re-education of muscles weakened by disease or accident. Indication for it is found in the loss of function; its aim is to restore latent or lost muscle power. It cannot be given by a nurse, a masseuse or a physical education instructor who has not studied the whole subject thoroughly and carefully, for wrongly administered, it can do just as much harm as good. The home-nursing care not only helps to restore this function but the con-

stant supervision, teaching and encouragement to both families and patients round out the work of the physician, the hospital, the dispensary, and the school.

A Nation-Wide Health Examination Campaign

With the slogan "Have a health examination on your birthday," there was launched on July 4th, 1923, a country-wide campaign for health examinations. This campaign is sponsored by the National Health Council, the members being as follows:

Direct members: American Child Health Association, American Public Health Association, American Red Cross, American Social Hygiene Association, American Society for the Control of Cancer, Conference of State and Provincial Health Authorities of North America, Council of Health and Public Instruction of the American Medical Association, National Committee for Mental Hygiene, National Organization for Public Health Nursing, and National Tuberculosis Association.

Associate members.—American Association of Industrial Physicians and Surgeons, National Committee for the Prevention of Blindness, and Women's Foundation for Health.

Conference member.—United States Public Health Service.

This national health examination campaign will extend from July 4, 1923, until July 4, 1924, and during this year an effort will be made to induce at least ten million persons to have health examinations. In order to carry out these plans through the country, state and local committees will be organized. Attractive publicity material such as pamphlets, posters, and a moving picture will be prepared for the use of these local committees. The public will be urged to go to reputable physicians or agencies for their examinations. Forms for the use of the doctors have been prepared by a committee of the American Medical Association, and special forms for children have been developed by the American Child Health Association and forms for women have been prepared by the Women's Foundation for Health. Intensive preliminary publicity by means of newspaper and magazine articles, photographs, and speeches before conventions and meetings is already under way. The campaign will be financed from the national standpoint by contributions of money and services from members of the National Health Council and from outside

sources, while in the states local committees will undertake to raise such funds as may be necessary.

Since it is generally acknowledged by sanitarians that one of the greatest needs in modern preventive medicine is a periodic complete and adequate human inventory, this health examination campaign should prove of the utmost benefit to the hygienic welfare of the country. The earnest co-operation of federal, state and local health officials, the medical profession, voluntary health associations, women's organizations, commercial, semi-commercial and industrial agencies, and, finally, the general public is necessary for an effective campaign.

Tentative Program of American Dietetic Association

The American Dietetic Association will hold its sixth annual meeting at Indianapolis on October 15, 16 and 17, with headquarters at the Hotel Claypool.

With the present development of the science of dietetics throughout the country, there exists the greatest need for well-informed dietitians, keenly alive to the problems of the day. The demand from hospitals, universities, schools, public welfare associations and the commercial field for food experts exceeds the supply.

The program for Indianapolis will cover every phase of applied dietetics. Preliminary plans are as follows:

Monday, Oct. 15.

10:00 a. m. Mrs. Octavia Hall Smillie, president, in the chair.

Section on Administration:

Speakers: Miss Effie Raitt, University of Washington, section chairman.
Miss Ruth Luby, University of Washington.

2:00 p. m. Section on Dietotherapy:

Speakers: Dr. Russell Wilder, Mayo Clinic, Rochester, Minn.
Dr. G. H. A. Clawes, Indianapolis.
Miss Amalia Lautz, dietitian, Peter Bent Brigham Hospital, section chairman.

7:00 p. m. Annual Banquet.

Tuesday, Oct. 16.

10:00 a. m. Section on Education.

Round table discussion: led by Dr. Ruth Wheeler, University of Iowa, section chairman.

8:00 p. m. Speakers: Dr. Louis Burlingham, Barnes Hospital.
Dr. Amy Daniels, University of Iowa.

Wednesday, Oct. 17.

10:00 a. m. Section on Social Service.

Speakers: Mrs. Gertrude Gates Murie, section chairman.
Miss Helen Parsons, University of Wisconsin.

2:00 p. m. Business meeting.

Tea.

8:00 p. m. Address by Miss Lydia Roberts, University of Chicago.

Tuberculosis Among the North American Indians

The report of a committee of the National Tuberculosis Association on Tuberculosis Among the North American Indians has been published as a Senate Committee Print (67th Congress, 4th Session) for the use of the Committee on Indian Affairs. Dr. George M. Kober was chairman of the Association Committee that made the study.

The first part of the report is a historical review of the subject from which the committee concludes that "there is no reason for assuming that the redman is peculiarly disposed to this disease."

"The evidence indicates that in the early days of colonization the prevalence of tuberculosis among the Indians was no greater than among the white race, probably not as great. From the available data it is also evident that there has been a progressive increase in the prevalence of the disease since their contact with the whites."

The percentage of deaths from tuberculosis among the Indians to the total number of deaths was twenty-seven in 1911 and thirty-five in 1915, following which it declined to twenty-seven for the year 1920.

One of the baneful effects of the advent of the white man was the gradual destruction and dispersion of the Indian's game, a condition that made more difficult the struggle for existence and subsistence and caused extreme suffering and semi-starvation. Those familiar with tuberculosis realize the evil effects of poor nourishment coupled with anxiety.

Provisions for the care and treatment of adults in the incipient and advanced stages of tuberculosis is the most urgent need of the Indian medical service. To enable the Commissioner of Indian Affairs to meet the situation properly the report states that two or three sanatoriums for adults are needed, one of them a hospital for hopeless cases. The committee also recommends the employment of additional field for nurses and matrons; increased compensation for all full-time salaried medical officers; and "the continuance of all health activities now inaugurated with the utmost vigor and sympathetic interest and enthusiasm."

The majority of Indians are poor and scattered and their work is often of a temporary character, and the income wholly inadequate to maintain a proper standard of living. Their vitality is often so reduced that they are

unable to do an honest day's work and are cruelly accused of being lazy whereas the great majority are industrious and willing to work when an opportunity is afforded. The committee is convinced that the Bureau of Indians should be entrusted with sufficient funds for immediate relief of distress.

Physical Training in Holland Investigated

The need of economy has led the Dutch to investigate—to inquire into the purpose of teaching and education. "Thus the old question whether the training of the mind must needs be of greater, equal, or less importance than the training of the body comes once more to the foreground," says P. A. Diels in *School Life* for April, 1923.

"Generally speaking," says Mr. Diels, "Dutch physical education is based on the German system of which Gutsmuth was the creator. 'Turnen' was for long years the principal feature, and though our gymnastic unions had no such political aims as the German 'Turnverein,' they enjoyed great popularity among parts of the nation. The other side of physical education, sports and games, was almost neglected; in fact, some twenty or thirty years ago practically no open-air games were practiced in Holland. This has totally changed and for the better, I think; at present every young man or woman has some sport or sports of his own choosing, football being foremost in favor, but a great many practice swimming, boating, cycling, and several ball games, too. Cycling is very popular in Holland owing to the level roads. Of the Amsterdam population of about seven hundred thousand, about one hundred thousand possess bicycles. It is one of the sights of Amsterdam to see the hosts of cyclists running through the streets during the busy hours of the day. Strange to say your baseball is almost unknown in Holland, and the endeavors of some to introduce the game in our country have led to next to nothing."

Interest in physical training is plentiful but funds and teachers are lacking. The Dutch Government appointed a committee to investigate the situation. In the introduction of the committee's report it is stated that it is of eminent importance to the nation that all powers existing in the people—moral, intellectual, and physical—be developed. That is why education must run parallel with mental and moral education. Training must be given to the children in ele-

mentary schools by the common class teacher, while for secondary schools the Danish system is recommended. Special attention is paid in the report to the needs of children between the ages of 13 and 18 years.

Rivalry between the Swedish and German systems animates the present day discussion. Mr. Diels continues, "The advantages of the Swedish system, which are especially found in the analyzed and localized exercises, are not denied, but those in favor of the German-Dutch system assert that the same advantages are found in the more complicated exercises. But the principal argument is found in the fact that the German-Dutch system, with its variety of interesting exercises is exceedingly attractive for the pupils. . . ." The writer also says, "without regard to the system employed, the personality of the teacher plays such a great part in all tuition that both systems can boast of excellent results."

Traveling Milk Laboratory in Indiana

During the summer of 1921 the Indiana State Board of Health adopted a resolution establishing a traveling milk laboratory as a part of the Department of Food and Drugs. Work was begun on November 1, 1921.

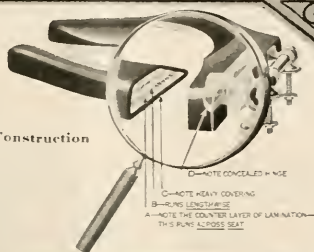
Surveys of milk supplies have been undertaken at the request of local city boards of health, chambers of commerce, or interested health and civic associations. The surveys have been made without cost to the cities other than furnishing a room for the laboratory equipped with light, heat, gas, water, and electric current. Transportation was also requested in the earlier surveys but as this proved unsatisfactory in that it could not be depended upon at the time needed, the bacteriologist has been supplied with a Ford coupe.

Seven surveys were completed during the remainder of the fiscal year of 1921 and 1922. These involved several hundred sanitary inspections and the bacteriological examination of 1,018 samples of milk. As a direct result Bedford, Shelbyville, and Anderson have adopted ordinances fixing the standards for milk and milk products and providing for sanitary inspection of dairies and milk plants.

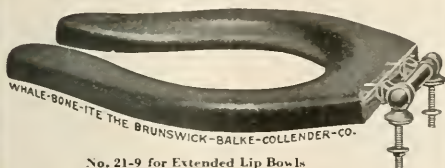
In addition the bacteriologist has carried on educational campaigns in the communities where he worked. More details are contained in the Seventeenth Annual Report of the Indiana State Board of Health for 1922.

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Construction



No. 18-59 Open Front and Back for
Extended Lip Bowls
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No. 23-9 for Regular Bowls



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Emphasized in
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EASIEST CLEANED
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ACID PROOF
STAND THE GAFF
NO DETERIORATION

First Cost-Last Cost

The finish is always handsome under service. The more it is used the better it becomes.

The hinges are strong, fool-proof and mechanically correct.

*Built to a standard for
Quality and Service
and not to a price*

Constructed to give the maximum of strength. No jar or sudden contact breaks or cracks it — unqualifiedly guaranteed.

The core is laminated — equivalent to ten times the strength of one piece or hollow space.

Types for all standard make bowls.

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Practical Methods for Removal of Dust and Fumes

(Continued from Page 519)

Cowls and induced draft should be installed concentrated near the larger moulds and fresh air supplied six feet from the floor to overcome this.

In handling feathers and other dusty materials, one should use air through machines like Kitson condensers in order that this dust may be confined and removed while being taken from bales and carried to the manufacturing departments. Air handling should always be a means for dust prevention.

arator is the one that gets the fine dust. Straight sided types with extra long cones not less than 50 per cent greater length gives 80 to 90 per cent fine dust removal, that is, dust that will pass a two hundred mesh. The resistance of these collectors runs about one to two inch water.

Situations, then, in which the practical difficulties arise follows:

(1) The dampers or covers at intake of connection to exhausters necessary to give uniform volume

separators of cyclone type.

(6) Sweep-ups are not to be figured in load and area of fans. Automatically closing damper lids are to be provided on each sweep-up, these connections to be not less than five inches in diameter.

Narcotic Education Week in California

The school law of California (1921) reads as follows:

Instruction must be given in all grades of school and in all classes during the entire school course, in manners and morals, and upon the nature of alcohol and narcotics and their effect upon the human system, as determined by science. In all teachers' training classes in the normal schools of this state, adequate time and attention shall be given to instruction in the best methods of teaching the nature of alcohol and narcotics and their effects upon the human system, and all examinations for the granting of certificates to teachers by Boards of Education shall include this subject.

The week beginning May 27, 1923, was observed as Narcotic Education Week in California, during which special emphasis was placed on instruction regarding the nature of narcotics and their evil effects.

The Menace of Morphine, Heroin, and Cocain by Montaville Flowers and H. R. Bonner (Bulletin No. 2, International Narcotic Education Association, May, 1923) was used as the basis of the special instruction given during this week.

A special course, made possible by funds given to Columbia University by John D. Rockefeller, Jr., is being offered to physicians of New York State continuously throughout the summer months and as long thereafter as may be needed having as its object the establishment of facts of importance regarding the dietary treatment of diabetes as well as a comprehensive summary of clinical experience thus far obtained in the use of insulin. A nominal fee is charged and the course is open to active practitioners of medicine who may desire to make immediate clinical use of this information.

New York State service to deserving children is now extended to 125 hospitals and dispensaries in eighty-five different localities throughout the state.



Fig. 2. An elaborate system for dust removal installed in a large hat factory at Danbury, Conn. An extremely dusty process is thus made safe for the workers.

Galvanizing tanks, acid baths, soda kettles, lead baths are easily handled but require proper treatment of hooding. In general, the hood should be larger than the surface of exposed kettle, the velocity 250-300 though the gross area of kettle should be maintained, not depending too much on natural exhaust. Get the hood as low down as possible. Use asphaltum paint or better still Elaterite No. 40 on coating surface, or tiling vitrolized or treated best for certain acids. Use wood, aluminum or acid resisting treated cement for nitric acid fumes. The fans are arranged for chain drive.

Use for sulphurous acid gases, (chloric and hydrochloric acid gases), but never for the nitric, a regulus metal casing and wheel and protected steel shaft. Nicrome steel is used for spider on nitric acid fumes with aluminum floats and side plates on wheel.

The practical dust collector or sep-

through each orifice are omitted. The practice of estimating speed changes from pulley sizes is hazardous. Don't estimate; know.

(2) It is necessary to specify heavy gauge metals in fan wheels and roundabout for handling clay products, grinding separation, and for separating dust from seeds and ores.

(3) It is safe to say that no exhausters should be specified where exhauster efficiencies run less than 50 per cent static efficiency. One exhauster largely used in Chicago for grinding and buffing tests runs 36 per cent maximum efficiency based on static pressure.

(4) Sander machines should be hooded at point of dust emission, the safe rule being to hood liberally both vertical and horizontal sanders.

(5) Fine dust, such as vernier saw and sander operations should pass through cloth screen eliminators unless coarse material is thrown into

Your Patients Are Just As Human

WHAT is it speeds you up in the bath? The thought of the bacon and eggs—or the aroma of rich, steaming Coffee?

And home for lunch after a strenuous morning—what gives more zest to the meal than Coffee?

As to the evening meal—you'd consider it incomplete without the final touch bestowed by Coffee!

Has it hurt you? Has Coffee really harmed you? Of course not, or your balanced judgment would have banished the steaming cup long ago from its welcome place beside your plate—after you had *convinced* yourself that Coffee was to blame for any discomfort—and *only after conviction!*

Your patients are just as

human as you. They like Coffee. It is the preferred beverage of most Americans. Its aroma excites appetite—a most important factor in the management of every case. Its peristaltic action is favorable.

Moreover, "caffeine may slow and steady a weak heart by stimulation of the vagus center, and thus may strengthen the heart," says Dr. Oliver T. Osborne, Professor of Therapeutics at Yale University, in his book on *Therapeutics*. And, further on, "it should be remembered that caffeine is as well administered in the form of strong coffee as in any other."

Why treat your patients other than you yourself would wish to be treated? Why disregard Coffee as a possible therapeutic aid?

Oregon Leads in Rehabilitation of Injured

(Continued from Page 518)

The young man was operated on several times by the surgeons and the operations were highly successful. Between operations he continued with his drawing, more as a means of occupying his mind than for any other purpose, for in the opinion of the vocational director the problem could not be solved unless the surgical department could show satisfactory results. After a time the work of the surgeon was so successful that this man was able to walk with the aid of crutches. He continued with his drawing and made most wonderful progress. He is now living in a family hotel with his room on the second floor. He walks up stairs to his room with the aid of his crutches, downstairs to the dining room, and frequently walks out on to the porch and down on to the side walk in front of the hotel. He has familiarized himself with the building code of the city of Portland and has done some very acceptable work in architectural design and drafting. He has been able to secure a number of jobs in making drawings, specifications, etc., for individuals who were applying for patents. At this time it is thought that within a year or so this man will be able to take a position as a regular draughtsman and will be able to get to and from his work by the aid of his crutches alone.

Back into the Game

It has always been the opinion of the director of Vocational Rehabilitation that the first great problem is that of the injured individual's mental attitude. Each individual is a distinct problem. Some will meet the director in a friendly spirit of cooperation showing a desire on his part to get back into the game. In such a case the problem then hinges upon the man's past experiences as a basis for determining his future occupation. If the man's injury is of such a nature that his past experience will not function in a new occupation, then the problems becomes one of discovering the man's desire for or liking of a particular occupation. As an illustration of this particular phase of the work I am reminded of an individual who had always been a carpenter. He had served an apprenticeship in his native country as a carpenter and

cabinet maker, had come to this country and worked at the trade in cities until he was thirty-four years of age. He had never done any farm work. He was married and had a wife and three splendid boys. The wife had been raised on a farm in Iowa. This man, working in the shipyards as a ship carpenter, lost his right arm at the shoulder. A carpenter without his right arm is about as nearly 100 per cent vocationally handicapped as possible for a workman to be. This particular problem had to be solved on the basis of the future outlook for that family of



Fig. 4.—Training in the Oregon Institute of Technology fitted this man to establish his own automobile repair shop. He employs several men, modernized his shop, is much more prosperous than he has ever been, and, according to his own statement, is happier.

boys. The farm experience of the wife was a determining factor. The man believed that if he could be given some special training in poultry husbandry, vegetable gardening, and dairy husbandry that he could manage a small farm near the City of Portland and make a living for himself and family. He was sent to the Oregon State Agricultural College and there given vocational courses in the above mentioned subjects. After he had finished his training, which covered about eighteen months in school, he was granted a lump sum of 50 per cent of his award, and with this money purchased a small farm of eighteen acres. He is now living on the farm and doing exceptionally well, as he has three cows and a number of chickens, (poultry husbandry being his major occupation). He raises vegetables for the market and has set out a young orchard on a part of his land.

The best results obtained in any occupation that we have tried to fit men for have been in barbering. We have

had five cases where the individuals were entirely incapacitated for their former occupation, but were able to take up the occupation of barbering. They have finished their courses and each of the five is now making good. Three of these own and operate their own shops, two are working in an adjoining state at the regular barber's wage and as four of these men are men having families, they are not only supporting themselves, but their families as well. The fifth one, the unmarried man, owns his shop in a little town in Oregon and is considered one of the progressive business men of that town and will, in the opinion of the writer, soon be elected mayor.

For various reasons poultry husbandry is the favorite agricultural occupation for these industrial accident victims. Figure 3 illustrates what is being done along this line. This man was a carpenter and millwright. A scaffold fell with him, injured his leg permanently, injured his back, also permanently, and a timber from the falling scaffold struck his head. In the opinion of the doctor the head injury was probably the greatest handicap of the three. We experimented with this man for six months. We requested him to take charge of a small flock of baby chicks, about fifty. This was to determine whether the man could follow out a certain line of reasoning or take instruction and keep track of a series of problems involving poultry husbandry. He made wonderful progress and at the end of the experiment was very much interested in the poultry work. We then gave him a correspondence course in poultry husbandry and by close supervision helped him in his various problems. The picture shows him at work on his home farm, where he now has a flock of four hundred laying hens and this spring should start with one thousand baby chicks. Since the first day of September, 1922, his accounts show that he has average fifty-two dollars a month labor cost on his flock of about four hundred laying hens. This means that he has paid for the feed of the hens and received fifty-two dollars a month for his labor in caring for them, and for overhead expense, such as buildings, equipment, etc.

Do you ever question your sterilizing methods?

Every treatment or examination room needs a sterilizer that will prevent chance of infection from unsterile articles. If you did all your work at the Hospital you would never think twice about this danger.

Now you can have that same surety with the use of Castle sterilizers. They are safe because they are made right in every particular—and have been for thirty years. They are a credit to any operator.

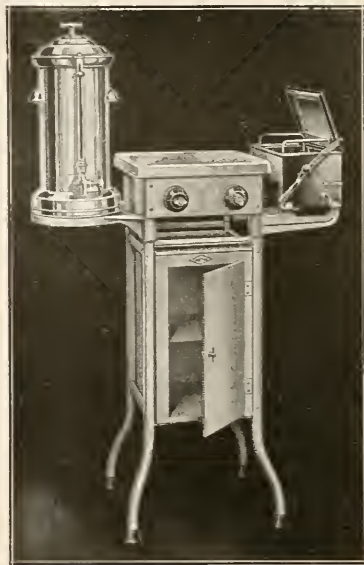


"Every patient looks for a sterilizer"

CASTLE

Complete line of Physicians', Dental, Hospital and Bacteriological Sterilizers

WILMOT CASTLE COMPANY, 1153 University Ave., Rochester, N. Y.



No. 1416

This new unit has a 14" instrument sterilizer, 3-gal. water sterilizer, a table top and cabinet. Neither sterilizer can boil dry. Single action lift for cover and instrument-tray. Three way faucet allows sterilization of water in the gauge glass. Even if you have a sterilizer send for catalogue "H".

Those Who Work In Busy Offices

labor under conditions which impose a constant tax on the nervous and mental forces of the body. Extreme fatigue is a natural consequence, but those who wear

O'Sullivan's Heels

have learned that in thus avoiding the nervous tension caused by the harsh impacts of hard leather heels, they can greatly reduce nerve tire and exhaustion, and as a logical result do more and better work.

It is easy to understand, therefore, why so many physicians advise O'Sullivan's Heels for those who work under nerve tiring conditions.

O'SULLIVAN RUBBER CO., Inc., New York City

On account of the many automobiles used in the country there is a demand for auto mechanics. Many of our injured men express a desire to take up the work as general repair men with a view usually of purchasing a garage and going into business for themselves. Figure 4 shows the most successful man that we have trained in this work. This man has a wife and two children. He was trained in the Oregon Institute of Technology as an auto mechanic and rented a garage that had been closed on account of the former owner failing in the business. He took possession of this garage and repair shop on July 4, 1921, and from the very start has made it a paying proposition. When he took it over the equipment was very limited. He has bought and installed modern machinery. He has had the building doubled in size. At one time when the director of Vocational Rehabilitation visited him he had four workmen employed. He now states that he is making more money than he ever made in his life and is happy in his work.

When society has learned that this work of vocational rehabilitation means more than simply returning the individual to a gainful occupation or industry there will be a united effort on the part of all interested to develop this work. The results to be obtained are more far-reaching than that of simply returning this or that individual to a condition of vocational efficiency, for it touches the lives of those near and dear to him. It is not for the purpose of making this or that individual an efficient workman alone, but it is for the purpose of first physically rehabilitating the individual so that he may enjoy the fruit of his labor; that his mother shall have the strength of his arm in her old age; that his wife shall not be an untimely widow; that his children shall have a father; and that cripples and hopeless wrecks who were once strong men shall no longer be a by-product of industry."

Tuberculosis Committee Educates Workers

The Tuberculosis Committees of Shamokin, Pa., recently decided to carry out a health educational program among the workers in the industrial plants in its territory. The committee won the active sympathy and co-operation of both the employers and employees and the work already promises to prove effective in raising the health standards in Shamokin and the surrounding terri-

tory. Miss Verna Hoagland, executive secretary of the Shamokin Tuberculosis Committee is actively in charge of this industrial health work.

Shamokin borough and Coal township, geographically one, have an area of 29.4 square miles and a population of 35,693, containing a large percentage of Polish, Slavish, Lithuanians, Russians, Italians and Pennsylvania Dutch.

There are seven collieries employing over 5,000 men in Shamokin. The other industries are silk and hosiery mills. The committee found there are four silk mills, five hosiery mills, two ice cream plants, two large baking companies, a noodle factory, a pure food products concern manufacturing bouillon cubes, a wash dress factory, an overall factory and a cigar factory.

Members of the Tuberculosis Committee visit many of these plants each month, put up posters, distribute literature, and talk to the employees.

Comfort Temperature for Indoor Workers

Fat men endure high temperatures better than thin men, according to a statement issued by the Carnegie Institute of Technology on the basis of research undertaken by the American Society of Heating and Ventilating Engineers, the U. S. Bureau of Mines, and the Carnegie Institute at Pittsburgh. The object of the research was to determine the "comfort lines" of persons indoors. The subjects were studied first by rest in still air, and then under successively varying conditions.

One of the important results of the experiments was the discovery of the great variations of external temperature which the human being can endure and retain his physiological efficiency. Another facts discovered was that increasing pulse-rate is more the cause of discomfort than is body temperature, when in a heated room.

MENUS FOR A THIN PERSON

These menus are planned to tempt the lagging appetite of a person whose ordinary requirement is 2,000 calories. Each day furnishes about 2,600 calories.

BREAKFAST

Orange Juice— $\frac{1}{2}$ Cupful
Egg—1 Bacon—2 Small Slices
Toast—1 Slice
Butter— $\frac{1}{2}$ Tablespoonful
Coffee au Lait— $\frac{1}{2}$ Cupful Milk, 2 Teaspoonfuls Sugar

MID-MORNING LUNCH

Cocoa—1 Cupful (All Milk), with 2 Tablespoonfuls Lactose Dissolved

LUNCHEON

Creamed Chicken on Toast-points— $\frac{2}{3}$ Cupful
Lettuce and Tomato Salad— $1\frac{1}{2}$ Tablespoonfuls French Dressing
Bread-sticks—3
Prune Whip— $\frac{3}{4}$ Cupful
Sponge-cake—1 Small

AFTERNOON TEA

Nut-bread Sandwiches—2 Lemon Tea
Sugar—2 Lumps

DINNER

Lamb-chop—1 Baked Potato—1 Medium
Creamed Peas— $\frac{1}{2}$ Cupful Peas, $\frac{1}{4}$ Cupful Sauce
Endive Salad— $1\frac{1}{2}$ Tablespoonful French Dressing
Bread—2 Slices
Butter— $\frac{1}{2}$ Tablespoonful
Charlotte Russe with Ladyfingers

BEDTIME

Milk—1 Glassful Ginger Cookie—1

BREAKFAST

Grapefruit— $\frac{1}{2}$ Medium
Cooked Wheat Cereal— $\frac{1}{2}$ Cupful
Thin Cream— $\frac{1}{2}$ Cupful (for Cereal and Coffee)
Sugar—2 Tablespoonfuls (for Grapefruit and Cereal)
Soft-Cooked Egg—1
Toast—2 Slices
Butter—1 Tablespoonful
Coffee
Sugar—2 Teaspoonfuls (for Coffee)

MID-MORNING LUNCH

Milk—1 Glassful

LUNCHEON

Club Sandwich—Large
Cocoa— $\frac{3}{4}$ Cupful
AFTERNOON TEA
Cream-Cheese and Date Sandwiches—2
Tea
Sugar—2 Lumps

DINNER

Clear Soup— $\frac{1}{2}$ Cupful
Beefsteak—Large Serving
Potato—1 Medium
Scalloped Cabbage— $\frac{3}{4}$ Cupful
Bread—2 Slices
Butter—1 Tablespoonful
Ice Cream— $\frac{1}{2}$ Cupful
Coffee

BREAKFAST

Orange—1 Medium
Oatmeal with Dates— $\frac{1}{2}$ Cupful Cooked
Oatmeal, 4 Dates
Thin Cream— $\frac{1}{2}$ Cupful (for Coffee and Cereal)
Corn-meal Muffins—2
Butter—1 Tablespoonful
Coffee
Sugar—2 Teaspoonfuls

LUNCHEON

Corn a la Southern—1 Cupful
Roll—1 Butter— $\frac{1}{2}$ Tablespoonful
Lettuce Salad with French Dressing
 $\frac{1}{2}$ Tablespoonful Dressing
Frosted Cup-Cake—1
Cocoa (All Milk)— $\frac{3}{4}$ Cupful

DINNER

Baked Ham—Large Serving
Spinach with Egg—1 Cupful
Scalloped Potatoes—1 Cupful
Bread—2 Slices
Butter—1 Tablespoonful
Baked Apple with Whipped Cream—Large Apple
2 Tablespoonfuls Cream
2 Tablespoonfuls Sugar

BEDTIME

Malted Milk—1 Cupful, and
1 Tablespoonful Lactose Dissolved

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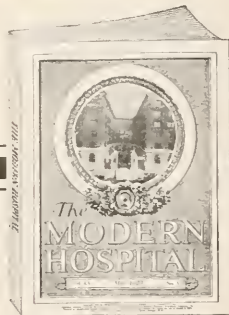
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Medical Observations on Zuni Indians

(Continued from Page 508)



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victims, as was developed, were not only ignorant of the etiology of this destructive and incapacitating disease, but were also devoid of any knowledge for preventing its dissemination. An urgent requisite, therefore, is comprehensive instruction by the reservation physician regarding the individual victim's care of his eyes and methods of destruction of the pathological secre-

in their native environment is due principally to medical negligence and educational neglect.

The writer wishes to express his deep appreciation of the generosity of Harmon W. Hendricks, Esq., the trustee of the Museum and patron of the Hendricks-Hodge expedition, who made possible the studies on which this brief paper is based, and to ex-



Well poised, muscularly well developed, with readily visible ribs and relatively prominent joints, these men show great agility and nervous endurance. The muscles of the feet and legs are not nearly so large as one would expect in a people who run as much as the Zunis do.

tions. That such instruction would be practicable, would be acceptable, and would probably go far toward preventing this disease, the writer has not the slightest doubt, for in his short residence among these people he found them not only willing but actually eager to cooperate in any measure which offered benefit. Response to a few applications of a weak solution of silver nitrate was so pronounced in the cases of trachoma which came under the writer's observation that he is firmly convinced that much suffering will be ameliorated and loss of sight from this cause prevented if conscientious, methodical, medical attention could be procured for these government wards.

In conclusion, the writer feels justified in stating it to be his belief that the prevalence of pestilence and insanitation among the Zuni Indians

tend his thanks to Mr. F. W. Hodge in charge of the field work of the expedition, whose knowledge of the Zunis and his congenial relations with them greatly facilitated these observations.

A study of summer camps in the United States was begun in June by the Playground and Recreation Association of America under the supervision of an advisory committee headed by Dr. J. H. McCurdy. The study is under the immediate direction of L. H. Weir, an expert on camps and municipal recreation, and will include the preparation of a practical summer camp book.

The Playground and Recreation Association 1923 Congress is announced to be held at Springfield, Ill., October 8 to 12.

4 MONTHS' RESULTS



A Springfield (Mass.) woman suffered from flat feet and bunions caused by wearing narrow-toed shoes. A local doctor advised her to wear

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She did, and he kept careful diagrams of her feet from April 19th to July 10th. The above drawings are reproduced from his records. They speak for themselves.



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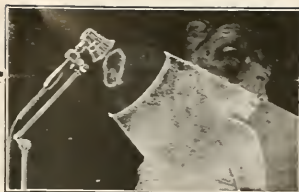
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Sewage Disposal in City of Brockton

(Continued from Page 516)

the particular type of screen which had been used cost about eight thousand dollars annually, and it was estimated that the sedimentation tank would cost about five hundred dollars. Neither of these figures includes overhead charges, but they are the actual amounts to be expended by the city each year, exclusive of interest on bonded debt. It may readily be figured from the above that plain sedimentation was by far the cheaper, and as it had demonstrated its merits whereas a screen located at the flow line of the sewage would still be an experiment, the former was adopted.

Intermittent sand filtration in the earlier days of the plant had produced an effluent that was highly purified, and there is no reason today why it would not still give excellent results if the dose of sewage was no greater than an average of 40,000 gallons per acre per day. The present average flow is more than 3,400,000 gallons daily, with a maximum as high as 5,000,000 gallons. The latter will probably be the average figure by 1935. At the time of construction of the new disposal works—1919, 1920, 1921—it was estimated that forty-four new acres of sand would be required to give proper purification. The land for this purpose was not available within the city limits. The legislature, as already stated, had previously refused the city the right to acquire land in Easton, and it probably would have been impossible to gain their sanction in 1919. A plant of over eighty acres of sand, however, would have been so large as to be unwieldy. The construction cost of the addition was estimated at \$220,000.

Activated sludge as the main method of disposal was not seriously considered, partly because of the sludge problem but more so because it was very doubtful that the state department of health would grant its approval. For the latter reason a thorough study of the sludge problem was not made. Experiments with deeper trickling filters than the one originally built, with plain sedimentation as a preliminary process, proved that this method of purification would give satisfaction. An average depth of stone of nine and one-half feet seemed to give the best results, and it appeared that the bed could be dosed at the rate of one and three-quarters million gallons per acre per day. The construction cost of in-

creasing the depth of the existing one-half acre three feet and building one and one-half acres additional was about \$250,000. The original cost of the stone plant was, therefore, very little higher than the cost of sand would have been, and at the same time a much more compact plant is obtained. The maintenance cost was the final analysis, and at that point there is no comparison. The labor cost of maintenance of the trickling filter, which is the entire cost of either plant, as plenty of sand for the replacement of the surface of sand beds is available, is about \$2.50 per million gallons, while that of the sand beds is over four times as much.

There was, then, little difficulty in making a choice of disposal works for the city. Plain sedimentation and trickling filters have been built to be used in conjunction with an excellent sand plant, and sufficient area is now available and will be available for the next few years to purify the very concentrated sewage of the city of Brockton to the same high degree that the original sand plant did two decades ago, when the population was about 40,000 and the daily average flow was less than 800,000 gallons.

Filipino Youth Thrive on Physical Education

Physical training has made the Filipino schoolboy of today far superior to the boy of twenty years ago, states the annual report of the Filipino director of education. It has taught the native pride in his physical well-being, sportsmanship, team work, and self control.

From thirty to forty minutes are devoted daily in elementary schools to physical training, comprising marching, calisthenics, group athletics, games, and dancing. Sixty minutes a day are spent by boys in secondary schools in military drill, group athletics and impromptu games, while girls in Filipino secondary schools spend sixty minutes three days a week in marching, games and similar activities.

Most of the schools are community centers, the most effective probably being the Central Luzon Agricultural school located in the midst of one of the largest rice producing regions. Physical education has given the youth of the Islands training in community leadership and a new national solidarity, the report states.



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Great Britain Notes Decrease in Compensation Cases

The report just issued by the British Home Office covering distribution of compensation funds for 1921 indicates larger awards, for limited periods, than were provided for by the original act. The report notes a striking growth in the number of cases of miner's nystagmus since 1908, the first full year after the disease was scheduled under the act. The number of new cases advanced from 386 in 1908 to 1,375 in 1911, 2,775 in 1914, 2,865 in 1920, falling off to 1,913 in 1921. The aggregate number of cases, that is, those continuing from previous years, has shown an unbroken increase, reaching the maximum of 4,804 in 1921.

Statistics are presented for the seven great groups of industries in which returns are called for from employers under a section of the act. These are mines, quarries, railways, factories, docks, constructional work, and shipping. While these groups cover a large proportion of the chief industries, they do not by any means, the report emphasizes, cover the whole field. The act applies to commercial, clerical, and domestic employments, besides the industries of building, road transport, and agriculture, which are not embraced in the figures given.

The reports in the seven groups named covered 146,946 employers, of whom 120,846 were included in mutual associations and insurance companies which made the returns for the employers included in or insured by them. These returns covered 70.2 per cent of the fatal cases and 69.3 per cent of the compensation in such cases; also 72.4 per cent of the disability cases and 75.2 per cent of the disability compensation. Of the total amount of compensation, £2,480,005 (\$12,068,944, par), or 45 per cent was paid by mutual associations; £1,632,405 (\$7,944,049, par), or 30 per cent, by insurance companies, and £1,396,985 (\$6,798,428, par), or 25 per cent by uninsured employers. Separate returns from employers numbered 26,000, of which 23,810 showed no cases of compensation under the act.

The number of persons under the act in the seventh industries was 7,315,866, a reduction of a little more than 1,000,000 from 1920. Fatal cases during the year numbered 2,385—more than 1,100 less than in 1920; while non-fatal cases showed a falling off of more than 98,000, being 283,361 in 1921 as against 381,986 in the preceding year. Payments for compensa-

tion in fatal cases totaled £518,064 (\$2,521,158, par) or an average of £217 (\$1,056, par) per case. The payments in non-fatal cases totaled £4,991,331 (\$24,290,312, par).

The falling off in the number of accidents in 1921 is explained by the increase of employment, while in the reduction in wages which took place in many important industries is also described as influential. However, the report points out, the total amount of compensation paid in non-fatal cases is by no means commensurate with the fall in the number of cases. The number was reduced by 25.8 per cent while the amount of compensation was but 4.4 per cent less. Lump sum settlements in 1921 averaged £73 (\$355 par), as against £62 (\$302) in 1920, while the average amount in weekly payment cases advanced from £11 (\$54) in 1920 to £13 (\$63) in 1921. This increase is attributed to the depression in trade and consequent lack of employment, which delayed the return to work of disabled workmen either at full employment or at light tasks.

Industrial disease cases, the report shows, occurred mainly in the mining industry, chiefly due to nystagmus, heat hand, and heat knee.

Good Proportions in the Diet

Good Proportions in the Diet by Caroline L. Hunt (U. S. Dept of Agriculture, Farmers Bull. No. 1313, March, 1923) deals with the problems of food selection in regard to adequacy, wholesomeness, attractiveness, and cost.

Food materials are classified into five groups which bring together under one head those foods which serve some, at least, of the same purposes in the diet, and which can, therefore, be reasonably compared in price. "The amount of nourishment or of material other than water and inedible substances in a pound of each of the different foods is stated in two ways, by weight and by hundred-calorie portions. By means of either of these two methods of measuring food values the amount of nourishment obtained for a given sum of money in buying different foods at different market prices can be estimated and compared."

The Public Health Council of Maine at its meeting June 22 voted to establish a division of dental hygiene, voting five thousand dollars of the 1923-24 appropriation to be used for the purpose.

The NATION'S HEALTH

A Monthly Magazine Devoted to Community Health with
Special Reference to Industrial and Institutional Problems

Volume V

Chicago, September 15, 1923

Number 9

Am I Physically Fit to Teach?

To Determine Whether School Assignments Carry Too Great a Physical Strain, Watch the Weight Record Charts, says Professor Clark

BY MRS. ERNEST R. GRANT, DIRECTOR, CHILDREN'S HEALTH CRUSADE, WASHINGTON, D. C.

AM I physically fit to teach? Will I pass my physical examination? These are questions of importance to every graduate of the normal schools of the District of Columbia. Before graduation all student teachers are required to undergo an examination to determine their physical fitness to engage in the teaching profession, and all remediable physical defects found must be corrected before their appointment is confirmed. Applicants having serious permanent defects are rejected. This examination, and the fulfillment of its requirements, is extended to include all others applying for teaching positions who are not graduates of the local schools. The examination is made by the school medical inspection force.

One of the greatest single factors in preparing the student teacher to pass this examination is the intensive health education methods of the nutrition classes that became a part of the regular curriculum of Miner Normal School three years ago. Upon admission to the school each student is given a thorough physical examination, weighed, measured, instructed in keeping the individual weight record

charts, and work is begun toward physical fitness. Each week thereafter the pupils are weighed, gains or losses recorded, and instruction upon the importance of the strict observance of fundamental health practices is given by the assistant director of

minute per week physical training period which was formerly devoted entirely to practical gymnastics. It is in these weekly nutrition class meetings that pupils are brought to some realization of the effect upon health of late hours, insufficient rest, over-fatigue, badly balanced diet, and physical defects. Emphasis is placed upon the fact that regulation of rest, sleep, good health, and good food habits are all matters of education. When these simple practices are violated, reserve energy is destroyed and resistance is lowered. On the contrary, observance of these habits and the correction of remediable physical defects develop a state of nutrition that builds resistance to disease, creates energy, and makes for general well being. There is nothing new in this simple health preaching. But the need of health for good work is so great that if results are to be obtained the subject must be presented in a

manner that will arouse interest. The weight record, with its weekly charting of fluctuating weights, and the recording of factors affecting the physical condition, has proved to be an effective method in stimulating



Dr. Hugh S. Cumming, surgeon general, U. S. Public Health Service, inaugurating the weighing and measuring of five thousand school children, conducted by the local tuberculosis association for the purpose of determining the percentage of underweight in the District of Columbia. Miss Coleman, school nurse, and Dr. Joseph A. Murphy, chief medical inspector.

physical training, Miss Anita Turner. The school physician and various members of the faculty frequently supplement Miss Turner in giving these health talks. The time allotted to the work is taken from the ninety

this much desired interest.

One ambitious pupil—E.—entered the normal school weighing 122 pounds, which was four pounds above normal. She immediately began to lose weight, dropping rapidly to 106. An examination by the school physician did not show a physical cause for this rapid loss of weight. The nutrition worker then took up the question of social environment that is always an important factor in health conditions. The cause was found: late hours

and insufficient rest. E. was working from 4:30 to 10:30 p. m. in a physician's office to assist in the support of an aged mother. She was immediately referred for rest cot periods and in ten weeks had increased her weight 12.5 pounds, which enabled her to carry the full school program and the burden of her family responsibilities without undue fatigue. E. was only one of eight seriously underweight girls all of whom were employed long hours after school, who were recommended for these rest cot periods. Two of the girls were working from 3:30 to 11:30 p. m., in the Bureau of Printing and Engraving, where the type of work they did required them to stand. In each case of these employed girls the rest cot period marked the beginning of a gradual consistent increase in weight. This demonstration was of value to the entire school. Through the cooperation of the local tuberculosis association the cots had been procured, and placed on the roof garden of the school. The time assigned to the girls for the use of these cots came from various free periods and during the regular physical training class.

The effect of an inadequate breakfast or insufficient or badly balanced diet registered to a surprising degree on the weight charts. As a result of this disclosure two changes of general importance to all student teachers took place: the installation of a fifteen minute morning recess period offering an opportunity to purchase milk and graham crackers which were sold at cost; and a hot nourishing noon-day lunch. This service is under the direction of



A group of Miner Normal School students eagerly awaiting the weekly verdict of the scale.

the principal and menus are prepared by the dietitian.

Faculty Meetings

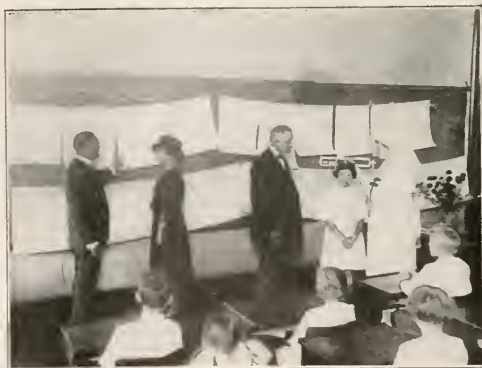
One extension of the nutrition class work is the meetings of the faculty for the specific purpose of discussing the daily program of the underweight student to determine the amount of work necessary for the preparation of outside assignments. An interesting development of these meetings was the discovery that many teachers in their interest and enthusiasm to develop their own subjects were giving assignments for home study far out of proportion to the time allotment in the regular day's schedule. The establishment of a program of home study was introduced that considered not only the results to be obtained in a particular subject but also in the physical well-being of the student. "The greatest single factor in helping us to determine whether a student is working under too great a physical

strain, necessitating the readjustment of home assignments, is the weight record charts," says Mr. E. A. Clark, principal of the school. "They have been instrumental in bringing to the attention of the faculty the necessity of arriving at the point where these adjustments are made; and in gaining the support of the teachers who are thinking more about the physical welfare of the student teacher than of the development of their own particular subject." The attitude

of these teachers is reflected constantly in the fact that reports concerning the physical condition of students come as frequently from the teacher of arithmetic, history or literature as from the nutrition director.

This explains the successful progress of the health education work of the school, which can only exist where there is the closest co-operation of all departments of instruction. Considerable credit for stimulating this interest is given to a small nutrition class of practice pupils directed by the local tuberculosis association three years ago. At that time this class and one for white children were conducted as a demonstration for the further consideration and approval of the Board of Education and the Superintendent of Public Schools. In the opinion of these officials the work justified an extension and the following year sixteen classes were organized, eleven for white and five for colored children, under the joint auspices of the Health

Department, the Medical Inspection Department of Public Schools, and the local Tuberculosis Association. During the current year twenty classes are in operation under the same supervision—sixteen continuing in the public schools, two at the Children's Hospital, and two at the office of the Tuberculosis Association. The personnel of the nutrition class department is composed of school physicians, nurses, nutrition workers and a director. Each class averages an enrollment of twenty pupils. The meetings are held weekly, during school hours. Parents are requested and expected to be—Continued on page 654



Mrs. Calvin Coolidge, wife of the President of the United States, paying a visit to the Thomson School nutrition class. Dr. Joseph A. Murphy is explaining the work to Mrs. Coolidge. Dr. George H. Heitmiller, school physician, is in charge of this special class, and Miss Bertha Walker is school nurse.

The Possibilities of a Market as a Service Institution

Even Though It Sacrifice the Picturesque, Sanitation Is a Good Business Asset to Any Market

By CAROLINE B. SHERMAN, MARKET TECHNOLOGIST, U. S. DEPARTMENT OF AGRICULTURE, WASHINGTON, D. C.

SANITATION is an outstanding consideration in the success of public markets from the viewpoint of service to the community. A public market may offer a good outlet for the produce of neighboring farmers, it may offer a good variety of fresh foods to city customers at fair prices, but if the foods and the conditions surrounding their purchase and sale are not properly protected by sanitary measures the market is not living up to its possibilities as a service institution.

That those responsible for public markets are awakening to this fact and are making effective efforts to reach a satisfactory state in sanitary matters is increasingly evident.

Improvements in sanitation can be made without the expenditure of money but this is true only to a limited extent. Many improvements in many markets were necessarily postponed during the war, but during the past two years many cities have taken up the matter of new buildings, extension of buildings or renovation and improvement. The United States Department of Agriculture is receiving constant requests for advice on all of these matters.

Wheeling, W. Va., recently replaced an old market established in 1828 by a new building costing about one hundred and sixty thousand dollars. Detroit has just completed improvements in its eastern municipal farmers' market, the largest in that city, at a cost of \$175,000. Especial atten-

tion was given to sanitation in its improvements, including new service buildings and an incinerator. These improvements were planned some years ago but were postponed by the war. Newark is now building a new market reported to represent an investment of about five million dollars, which aims to be the last word in sanitary equipment and arrangement.

To many it seems unfortunate that strict sanitation discourages the pic-

ture market as a service institution. It is difficult to regulate in sanitary matters, deal with a single product not readily contaminated. The street market at Lindsay, Oklahoma, where farmers' wagons congregate in the streets, on busy days, filling them literally from curb to curb, is devoted solely to the sale of broom corn. In the street markets of St. Joseph and Benton Harbor, Mich., the farmers offer nothing but grapes. But in most street markets the offerings are

many and varied and the trade is with retail customers, usually household providers.

Sanitary regulations for public markets should take into consideration existing state and city laws and ordinances. Some of the existing ordinances may relate specifically to public markets and may govern, rather rigidly, such measures as display of foods, use of screens and accumulation and disposal of refuse.

Regulations for curb markets, larger open public markets, and

inclosed market buildings, naturally vary considerably. For a large market sanitary regulations should cover (1) Condition of product offered for sale; (2) periodical cleaning of containers, counters, stalls and equipment; (3) type and care of garbage can and disposal of garbage by each standholder; (4) conduct of employees, and (5) exclusion of live animals and undesirable persons from the market.

Not only meats and fish in unwholesome condition but all other food prod-



A fruit market planned so that the picturesque and colorful display of wares in no way infringes upon sanitary requirements.

turesque and colorful quality often found in public markets especially in the regions where negroes and small immigrant farmers bring their wares to the market. There were those among the city's visitors who regretted to see the famous old French market of New Orleans put in screens, plumbing, and modern regulations several years ago but the housewives who bought the daily food for their families there, pronounced it an unmitigated blessing. Fortunately some of our open street markets, that would



A southern curb market on a spring morning. Regulations for curb markets, though comparatively simple, are no less important than in the conduct of inclosed markets.

ucts should be regulated. Excessively decayed and offensive fruits and vegetables should be excluded and any other products no longer fit for food.

The stalls, counters, trays, and containers on which foods are displayed or sold must be kept in clean and attractive condition and protected insofar as possible from dust and flies. All stands must be cleaned inside and out, and all equipment must be cleaned at the end of each business day. This cleaning must include the smallest articles of equipment as racks, hooks, and meat saws. Regulations should specify all of these points.

Sanitary conduct of standholders and employees include wearing of white coats, apron or jumper, keeping clothes and person clean, and excluding expectoration and smoking while in the market building. Persons afflicted with any contagious or communicable disease should not be employed.

Next in importance to good sanitary regulations is adequate enforcement. Many an insanitary market now in operation could improve matters greatly without much expense by enforcing the regulations already on the books. Regulations are more readily enforced in inclosed markets but the simpler regulations usually provided for open markets should be strictly carried out.

One of the most noteworthy results of the Federal administration of Center Market in the City of Washington, during the past year, is the demonstration of what can be done in the way of rejuvenation of old markets in sanitary matters. The present building dates back to 1872, and replaced one much older, on Government ground. The market is one of the largest retail markets in the

United States. It has played an important part in feeding the National Capitol and has been patronized by housewives of all classes from all over town for several generations. But it was not in a satisfactory sanitary condition when the Government terminated its lease last year and placed the market under the control of the Secretary of Agriculture.

New rules and regulations were promulgated and have been strictly enforced by the new superintendent, C. W. Kitchen, in so far as present equipment permits. Stands are rented under yearly leases which provide for cancellation upon violation of the regulations. More than seven thousand dollars has been spent in painting the

interior. Public comfort stations and rest rooms were rebuilt at a cost of \$5,000, and many other improvements were made to the property and equipment. Yet the property has earned, during the year, for the United States Treasury, about sixty thousand dollars in excess of expenditures. The initial cost to the Government was \$960,250.

An experienced meat inspector has been employed by the market to devote all of his time to it. So far as known, this is the only meat inspector exclusively employed by a retail market in the country. This inspector is empowered to tag any piece of market or stall equipment that he finds in unsatisfactory condition. "U. S. Insanitary." A tool so marked cannot be put back in use until it has been cleaned, and the tag can be removed only by the inspector or the superintendent of the market.

Improvements in market equipment have largely taken the form of especially-designed sanitary market stands embodying many original features. The first erected has served as a demonstration of a new type of sanitary equipment for displaying fish. The general construction of this 18-foot counter is of hollow tile, reinforced cement, with a glazed tile front, and a vitreous tile base. A marble ledge on the top accepts the framework for the plateglass top and front and nickel-plated glass supports. The counter is divided into four sections. A—(Continued on page 657)



Partial view of new Comfort Station and Rest Room for Women, Eastern Municipal Market, Detroit, Mich.

The Antiscorbutic Vitamin and Its Dual Role in Nutrition*

Vitamin C Not Only Serves to Prevent Scurvy, But Its Presence in Sufficient Amount Is Necessary If the Tissues Are to Resist the Onset of Infections

BY G. MARSHALL FINDLAY, M. D., ROYAL COLLEGE OF PHYSICIANS LABORATORY, EDINBURGH, SCOTLAND.

DURING the past few years the intensive study which has been devoted to the subject of nutrition has revealed the fact that certain, by no means uncommon diseases are caused not by bacteria or toxins but by the deficiency of certain essential substances—the vitamins—in the food. Among these deficiency diseases, as they are termed, are beriberi, xerophthalmia—an inflammatory condition of the eye, and scurvy.

Scurvy has been known for many centuries as a malady which inevitably occurs on long sea voyages or during wars when fresh food is unobtainable. One of the earliest accounts of the disease is to be found in the chronicles of de Johnville, who in the thirteenth century took part in the crusades of St. Louis of France, in Egypt. In the recent war there were severe outbreaks in the Balkans, more especially among the Serbian troops and, during the siege of Kut in Mesopotamia, among the British troops. In the seventeenth and eighteenth centuries scurvy played havoc with the personnel of the British Navy, but it was finally stamped out by compulsory addition of lime juice to the ration.

The exact cause of scurvy was for long unknown. It was thought that it might be due to toxins contained in decaying meat or to bacterial infection. In 1895, Theobald Smith had found that when guinea-pigs were fed on a diet entirely lacking in green food they developed a disease characterized by numerous hemorrhages. It

was only in 1907, that Holst and Froelich showed that this hemorrhagic condition in the guinea-pig was identical with scurvy in man and that its onset could be effectively prevented

known both in regard to its properties and distribution in a large number of natural foodstuffs. When cabbage is heated for sixty minutes in the presence of air at a temperature

Vitamin C and the Body Defenses

FROM four to six months on a scorbutic diet suffices to produce a disease picture easy of recognition and violent enough to provoke the necessary precautions to avoid.

Dietaries, however, in which vitamin C is insufficient but not lacking, produce a sub-acute condition of scurvy that is obscure, but of such serious import as to lower the tone and heighten susceptibility to infection of the whole population.

The public, ever slow to correct physical disorders through change of personal habit, even now does not accept that a disease so serious can be cured by so simple a means, and only the findings of the biologic laboratory have served to question methods of cooking, preserving, and storing that may have a bad effect on the unstable vitamin C.

by the addition of cabbage or orange juice to the diet of oats and bran. The antiscorbutic property of such food stuffs as the cabbage and orange is now recognized to be due to the fact that they contain a definite substance, capable of acting in very small quantities and known as the antiscorbutic vitamin, or vitamin C.

Destroyed by Oxidation

Although the exact chemical constitution of vitamin C has not yet been determined, a great deal is

of 80 degrees to 100 degrees C. 90 per cent of its antiscorbutic value is lost, but this destruction is not so much due to the actual effect of the high temperature as to the increased rate of oxidation. If the air is replaced by an atmosphere of carbon dioxide or nitrogen there is then no loss of antiscorbutic power. Ozone and hydrogen peroxide rapidly destroy the vitamin, a point of some practical importance since at one time it was proposed to use hydrogen peroxide for the sterilization of milk. Vitamin C is readily soluble in water, but, unlike vitamin B, it cannot be absorbed from solutions by substances such as fuller's earth or animal charcoal. It is more rapidly destroyed by alkalis than by acids.

Luckily, vitamin C has a comparatively wide distribution in nature. It is present in largest amount in the juices of the orange and lemon and, to a much smaller degree, in that of the lime. The preserved lime juice which was formerly carried on almost all ships had little or no antiscorbutic property. The original "lime juice" which was so efficacious in stamping out scurvy in the British Navy in the eighteenth century was in reality obtained from the lemon which on the shores of the Mediterranean was popularly known as the lime. Later, the juice of the true lime was obtained from the West Indies under the misapprehension that it was identical with that obtained from the Mediterranean littoral. Scurvy,

*The second of a series of articles on the Vitamins. The first on vitamin B by Cowgill, of Yale University, appeared in the August issue of THE NATION'S HEALTH.

however, did not again break out in epidemic form in the navy owing to the more rapid voyages and the generally improved methods of storing food on board ship.

Vitamin C is present also in cabbages, lettuce, watercress, and in a variety of fruits such as strawberries, raspberries, bananas, apples, and especially tomatoes. It is not found in dried peas or other legumes, but if the seeds are allowed to germinate it is then found to be present in considerable quantities, having been formed during the process of germination. Fresh meat contains the antiscorbutic factor in considerable amount, a fact proved by numerous arctic explorers who have kept free from scurvy by eating fresh seal meat. Vitamin C is also present in milk, but the amount in milk is directly proportional to that in the food of the mother. Thus, during the summer and autumn, cow's milk contains much more vitamin C than during the winter and spring when green food is difficult to obtain in large quantities.

Tinned meat and tinned fruit are entirely lacking in this vitamin, while in many of the commercial vitamin preparations it is extremely deficient.

Experimental Scurvy

Scurvy has now been produced experimentally in guinea-pigs, pigs, and monkeys. It is curious, however, that certain animals such as the rat and rabbit do not develop scurvy when vitamin C is entirely lacking in the diet. In the case of the rat, however, small doses of orange juice do appear to improve the general nutrition of the animal, while experiments have shown that even after many weeks on a diet quite devoid of vitamin C the liver of the rat contains a considerable amount of the vitamin. How the vitamin comes to be stored up in the rat's liver is unknown, though the possibility of synthesis is one which must naturally be kept in mind.

The nutrition of the rabbit also appears to be benefited by the addition of vitamin C to its diet. If a pregnant rabbit be fed on a diet lacking the antiscorbutic vitamin, it is found that, though the mother does not exhibit any actual signs of ill health, the young are generally born dead and on microscopic examination show signs of hemorrhage into the muscles round the knee joint.

In a guinea-pig fed on a diet entirely deficient in vitamin C symptoms of scurvy begin to appear after some twelve to fourteen days, while the animal dies with all the

acute symptoms of the disease in from four to five weeks. If, however, very small quantities of an antiscorbutic, such as orange juice, are given to the guinea-pig every third or fourth day, the animal develops a condition of chronic scurvy characterized by no very definite symptoms except slight lethargy and a failure to put on weight.

Latent Scurvy Common

In man, apart from the epidemics which accompany war and famine, scurvy is most commonly seen in young children and in old people. Scurvy in the infant was first accurately described in 1883 by the English physician Barlow, who clearly demonstrated its close similarity to the disease in the adult. The classical symptoms of acute scurvy in children are only too well known. The child, generally a poorly nourished infant, lies quietly in bed in a somewhat characteristic position, usually with one thigh everted and flexed on the abdomen. If the legs are touched the child shrieks with pain, and on examination one or both thighs are found to be swollen and tender. If the teeth are present, the gums in relation to them are red and swollen and bleed at the least touch. It must be remembered, however, that these acute symptoms are only manifested when there is a complete lack of vitamin C in the diet. With sub-minimal amounts in the food, latent scurvy results, a condition closely akin to the chronic form of scurvy produced experimentally in the guinea-pig. In the child with latent scurvy there are no definite symptoms except listlessness and failure to put on weight. As Hess has pointed out, the condition of latent scurvy is probably the commonest type of the disorder, especially in the larger cities where almost the entire milk supply for infants is pasteurized.

In adults, acute scurvy differs in certain particulars from the form seen in children. The earliest sign is usually a change in the complexion, the color becoming characteristically muddy. Frequently too, swelling of the pinna of the ear is found in the initial stages, especially if the patient has slept on a hard pillow. There is often also an enlargement and thickening of the hair follicles of the inner and anterior aspect of the thigh and upper part of the leg. In the later stages the gums become soft and swollen and bleed very easily, while firm tender swellings may appear in the muscles and deeper tissues, more especially in the calf mus-

cles of the leg. These brawny swellings are due to hemorrhage into the tissues. As in the case of the child, so too with the adult, the disease is more often present, not in an acute, but in a latent or subacute form, uncharacterized by definite clinical symptoms.

In the acute form of scurvy the main pathological changes are to be found in the blood vessels, more especially in the lining cells of the capillaries. Degenerative changes occur in these cells with the result that the delicate capillary walls are easily ruptured. Changes associated with fibrosis of the pulp, are also met with in the teeth.

In chronic scurvy there are no very definite lesions in the vessel walls, with the result that hemorrhages are much rarer; nevertheless, certain important pathological changes do occur more especially in the blood-forming bone marrow.

Bodily Defenses Weakened

It is well known that one of the main ways in which the body wards off the attacks of pathogenic micro-organisms is by means of certain of the white cells in the blood—the polymorphonuclear leukocytes. These polymorphonuclear leukocytes, which have the power of ingesting and destroying bacteria, are found in the bone marrow. The invasion of the body by bacteria is the signal for an increased formation of polymorphonuclear leukocytes by the marrow. If for any reason the blood-forming marrow is damaged the number of leukocytes poured out into the blood stream is insufficient and as a result the bacteria flourish unchecked. Now, in the chronic form of scurvy, there are found experimentally very definite degenerative changes in the bone marrow. The blood-forming cells are replaced by masses of fibrous tissue or by gelatinous-looking material. If, now, an animal suffering from this chronic form of scurvy be inoculated with pathogenic bacteria, such as *Pneumococcus*, *Streptococcus*, or *Bacillus coli*, the leukocytic response is insufficient, the bacteria grow unchecked and the animal succumbs to a much smaller infecting dose of the organism than a control animal fed on a diet containing ample supplies of vitamin C.

The antiscorbutic vitamin has thus a double rôle to play in nutrition, for not only does it prevent scurvy, but its presence in sufficient amount in the diet is essential if the tissues are to resist successfully the attack of common pathogenic micro-organisms.

Fresh Air Outings in Child Care— The Medical Point of View*

*One May Properly Suggest the Importance of Careful Inquiry Into the
Purposes, Administration, and End Results of
Fresh Air Outings*

BY IRA S. WILE, M.D., NEW YORK CITY.

IN DISCUSSING fresh air outings as a factor in child care, it is necessary to differentiate outings for the purpose of prevention or the cure of disease, outings as recreation, and outings to tide over social situations. Obviously, from the standpoint of recreation, or the meeting of temporary familiar problems, the time element is partially determined by the nature of the home situation, or by the number of children to whom recreation is to be given, in terms of the relative amount of recreational opportunity available.

There appears to be a somewhat natural seasonal variation in the fresh air outings, which is not dependent upon medical situations. The need for convalescent care exists throughout the year, as does a considerable amount of relief for the control of social factors. The demands of school and the handicaps of rigorous climatic conditions appear to throw the peak load of fresh air outings upon the summer months. It is during the summer period, particularly, that the medical question arises as to the period of stay at a fresh air home. There is a definite question as to the value of the day's outing, insofar as it applies to specific medical conditions. Casting aside the tremendous strains upon mothers, incident to giving a family of children a day's outing, one may ask the degree to which bodily health is advanced by day boat trips or train trips to nearby places. Undoubtedly an occasional

measure of gain is secured through the exposure to the sun's rays, the freedom for play and exercise, and the increased pleasure that comes from holiday food supplies. There is not

equaled in terms of physical improvement for the majority of children to whom such advantages are offered. Considering the tremendous number of children who actually require open

air treatment, it is most likely that outings of this character fail to produce communally vital results warranting their continuation. The floating hospital is not to be considered as a fresh air outing, but as a particular form of hospital, designed to meet the needs of children with acute illnesses, or to supply a means of improving the opportunities for rapid convalescence. Certainly so far as tuberculosis, rheumatism, heart disease and convalescent states from various diseases are concerned, the day's outing is valueless.

A tendency too frequently noted among institutions is the desire to represent in their annual reports that they have given fresh air care to large numbers of children. These total figures are sometimes exceedingly high, but they are by no means indicative of the medical service provided, or the physical advantages yielded to the children thus cared for. No one will

deny that two weeks in the country is an excellent prescription for any city child, and that the results of it may redound to the physical improvement of children. On the other hand, two weeks' outing care for a child with heart disease, chorea, rheumatism, evidences of malnutrition and anemia, or other constitutional weaknesses, by no means represents adequate treatment. Outings in these cases should be prolonged and should include complete medical care.

It would appear to be desirable to

Fresh Air for Selected Groups

SINCE it is not possible to furnish fresh air recreation for all children for whom it is considered socially desirable, what system of selection is to govern the distribution of such privileges? The author believes that the fresh air facilities offer the best solution of the crying need for convalescent care, and that first choice of fresh air and recreational agencies should be given to patients discharged from hospitals, or persons who are dispensary charges, or who are under the supervising care of private physicians. At least fresh air camps should be evaluated and placed accordingly in their proper place in a general scheme of preventive measures. The preventive values of fresh air would then appreciate in meeting the problems of all subnormals, mental and moral, as well as in rehabilitating the purely physical sub-standard children.

merely a raising of the morale of children, but, incidentally, a small measure of stimulation, which is advantageous. The actual effect upon health is negligible.

Boat outings, continued over a period of days, provide a larger measure of benefit, by reason of the extra nursing care, the supervised dietary, and the relief from the dust, the crowding, and oppression of the congested homes of cities. It is dubitable in my mind whether the actual per capita cost of outings of this type is

*Read at the "Get Together Fresh Air Conference" called by the Committee on Fresh Air and Convalescent Care of the Children's Welfare Federation, New York City, May 8, 1923.

adjust the plans for outings throughout the year, in such a manner that the period of stay would be determined by the needs of the individual child. Many institutions would care for a smaller number of children, but their actual number of days' care would be identical, and the medical results of their service would be of greater communal benefit. When one realizes the degree of time and care given in preventoriums, camps, and roof health resorts to build up the physical well-being of children, so as to protect them against tuberculous infection, one may appreciate how far the time element is concerned in the actual preventive methods. Similarly, when one recognizes the number of days involved in restoring to functional activity children with cardiac disease, one realizes to what extent short periods of time fail to achieve desirable ends.

The short period away from home may be fraught with danger, unless there is full opportunity for medical oversight, following upon a preliminary medical examination, in view of the necessity for a rational control of dietary and exercise, as a means of promoting physical welfare.

The primary purpose of fresh air outings and convalescent care should be to restore to their maximum functional activity, the half cured individuals, who are discharged from hospitals. While one speaks of fresh air in all these forms of care it must be recognized that while sunlight and oxygen are of paramount value, they are not more important than the provision of proper food, the supervision of exercise, the relief from the noise, turmoils, strife, and unhappiness of homes, and the amusement, diversion, recreation, and occupation, which constitute elements in rational convalescent care. From the medical standpoint fresh air outing should be provided, together with convalescent care, for children who have undergone surgical treatment, those who are handicapped by carditis, rheumatism, arthritis, bone and joint tuberculosis, children with temporary mental disorders, and a large variety of nervous diseases and, indeed, adolescent children undergoing physical and mental difficulties and maladjustments. The problem of after care is bound up in convalescent care and outings.

Brown, in 1911, estimated that 60 per cent of the surgical cases and 40 per cent of the medical cases in hospitals for acute diseases require organized convalescent care. Of this

number he estimated that 20 to thirty per cent would be eligible for a convalescent home. These figures deal, of course, with all types of hospital patients. If one were to consider the figures for children, the percentage would probably be about the same, except that a larger percentage might be eligible for the convalescent home. It has been amply demonstrated that the city, itself, with adequate home supervision, guidance, and direction, does not offer insuperable difficulty to the maintenance of reasonable health.

Considering the population, it is not possible to make provision for all the children to whom, from a social standpoint, it would be desirable to offer the fresh air recreational facilities. Therefore, it becomes more impera-

would recognize more fully its responsibility for extending its ideas of health administration to cover convalescence. Thus the sick, handicapped or sub-normal child under hospital auspices, might receive the follow-up care essential to promote its highest functional efficiency.

Of Social Value

I recognize that a large number of children do not come into intimate contact with medical service as early as might be desired, and that their needs are first ascertained through philanthropic agencies, social settlements, and similar organizations interested in promoting the well being of families. Medical examination of evidence of incipient or advanced organic disease or may reveal definite constitutional or functional weaknesses, incident to living in a home with an inadequate income, or in surroundings fraught with physical or mental hazards. Every fresh air agency should require a physical examination and reasonable diagnostic explanation for the admission of children to its groups, and at least an assurance of freedom from contagious disease.

From the social standpoint there is no doubt that an outing of varied duration would be of inestimable value, although the end result of short stays would be quickly overcome by a return to the home with its impoverishment, ignorance, indifference, neglect, or familiar strife. The question may be properly raised as to whether the value of fresh air care is of permanent worth. It would appear to me essential to evaluate fresh air work in terms of their definite objectives. Is the purpose to give children a good time, a temporary respite from the trials and tribulations of childhood, the oppressiveness of city life and home surroundings? Is the aim to provide temporary shelter in social emergency or to transfer the burden of temporary relief from one type of philanthropic agency to another social group? Is it purposed to afford a temporary building up of physical health, in order to give greater strength to meet the hazards of a return to urban life? Is it designed to effect the permanent cure of some particular malady or restore to functional power in such a manner as to lessen the likelihood of the return of the specific physical or mental handicap? Is it to be purely convalescent care or physical care plus oversight, hyperalimentation, supervised exercise, occu—(Continued on page 658)



"I don't drink tea or coffee. I like bread and butter." The New York Tuberculosis Association trains children in habits of health.

tive to make adjustments in such a manner as to yield the fullest measure of benefit to those most requiring communal care of the type being discussed. This involves some definite system of selection. I believe that the first element in the population to be considered are those who are to be discharged from hospitals, or who are under care in various dispensaries or by private physicians.

Dr. Frederick L. Brush has referred to convalescent work as "serving as an extension arm to the hospital," and this would appear to be a type of development meriting considerable thought. By so doing, the hospital

Facilities of Warren County Bacteriological Laboratory

The Physicians of This County Have Worked Out An Adequate Service for Hospital and Community, Serving Part of Three Counties

By MORRIS MASLON, M.D., DIRECTOR, GLENS FALLS, N. Y.

DURING the year 1910 the New York State Department of Health, carrying out its policy, at that time, of trying to establish laboratories in the various counties in the state, was able to convince the physicians of Warren County of the necessity of having a laboratory located in their county, and of the benefits which they would derive from having facilities for laboratory service near at hand.

These physicians, appearing before the Warren County Board of Supervisors at one of the regular meetings of the board, were so successful in convincing them of the importance of having a diagnostic laboratory in their vicinity and of the immense benefits which the residents of the county individually, and the county as a whole would derive from having this laboratory in their midst, that the following resolution was immediately adopted by them:

Resolved: That the Board of Supervisors of Warren County, pursuant to Section 43 and 44 of the County Law, establish a county laboratory to be known by the name of the Warren County Bacteriological Laboratory. That this laboratory shall be maintained at the Glens Falls Hospital according to an offer made by the board of directors of the hospital, viz.: That the hospital shall furnish light, heat, and water for the same with the understanding that the services of the attending bacteriologist shall be free for all patients in the hospital.

That said laboratory shall be governed by a committee of three members of the board and two practicing physicians of the county. That the governing committee shall select and recommend for appointment to the board of supervisors a competent bacteriologist who shall devote his entire time to the work of the laboratory.

That examinations relative to all communicable diseases shall be made free of charge for all people of Warren County, and also all examinations in which the community at large is the beneficiary, but in those cases in

which the individual is the beneficiary, a charge shall be made.

All moneys received from the fees shall be paid to the County Treasurer on the first day of each month.

The Warren County Bacteriological Laboratory, as it is now called, was, therefore, officially established at the Glens Falls Hospital in Glens Falls, and at once served a dual purpose:

tion, and all autopsy work for the coroners. In addition, the laboratory acts as a substation for the state laboratory, and keeps on hand at all times in a properly cooled place, and easily accessible to the physicians, a full supply of various antitoxins, vaccines, and all laboratory supplies necessary for the health officers. A small

charge, graded according to the work required is made for all examinations where the individual alone is benefited by it. This work is performed for the physicians of the county and, in order to bring the facilities of the laboratory within the reach of all the people of the county, the fees were purposely made rather nominal. The fees collected by the laboratory, and turned over to the county treasurer, serve to pay the running expenses of the laboratory. The scope

of this work is as follows: Complete blood examinations, stomach analyses, stool examinations, complete urinalysis, all bacteriological examinations, cultures and smears, renal function tests, blood chemistry and tissue examinations.

The laboratory was originally housed in one room furnished by the hospital, in the hospital, and was equipped at an initial cost of about a thousand dollars. The personnel consisted of one worker—the writer—a physician who devoted his entire time to the work of the laboratory. The equipment, of course, in the beginning, owing mainly to lack of space and but partly to lack of funds, was moderate, though fairly complete. However, the work of the laboratory increased to such an extent, that additional apparatus and housing room soon became a necessity; also, the work required by the community and hospital increased to such an extent that additional workers in the laboratory were needed. An agreement was recently entered into with the directors of the Glens Falls Hospital

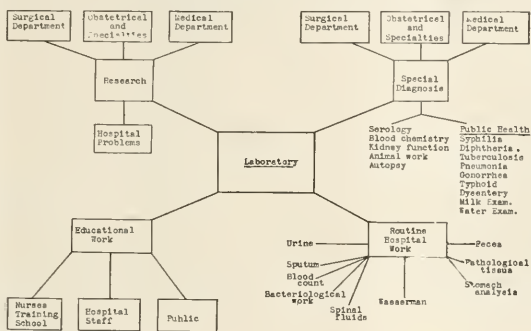


Fig. 1.—Chart showing internal relationships of the services embodied in the laboratory and points of contact with larger professional and community interests.

Acting as a public health laboratory, it furnished laboratory services to the county as a whole and diagnostic facilities to a population of thirty-two thousand, it served, too, as a general hospital having a capacity of about seventy beds. Also, the geographical location of Glens Falls, just on the border line of two other counties, and close to three fair size communities, the diagnostic facilities of the laboratory serve parts of two neighboring counties.

In accordance with the original resolution passed by the Board of Supervisors, all public health work for the county—which means all work required by the various health officers of the county—is done free of charge. The scope of this work includes water and milk examinations, the diagnosis of enteric diseases, sputum examinations for tuberculosis, sputum typing for pneumonia, the examinations of smears for gonococci, the dark field examination for syphilis, the examination of spinal fluids for meningitis, throat cultures for diphtheria, collection of blood for Wassermann reac-

whereby they would furnish additional room for the laboratory and charge a nominal fee to all private patients entering the institution for treatment or diagnosis, which fee would permit all patients in the hospital, whether public or private to receive unlimited laboratory service. A fund was created to enable the laboratory to provide additional equipment, and pay the salary of at least one and possibly two technicians. Furthermore, owing to the kindness of a lady resident of Glens Falls, who wishes to remain unknown and to whom we take this opportunity of publicity acknowledging our thanks the sum of one thousand dollars was donated for additional laboratory equipment.

At the present time the Warren County Laboratory is housed in two rooms, well furnished, with a personnel consisting of a director and one technician, and with equipment which we believe is probably the best of the smaller laboratories, and perhaps the equal of some of the larger laboratories in New York. The present indications are that the laboratory already needs not only additional room, but more technical assistants.

The function and scope of work of the Warren County Laboratory can best be illustrated by the accompanying diagram, (Fig. 1), and by a resumé of the work done for the six months from December 1, 1922 to June 1, 1923. A detailed statement of the equipment exclusive of chemicals etc., follows:

Laboratory Equipment

- A. Pathological and Bacteriological Department.
- 1 binocular microscope with mechanical stage.
 - 1 monocular microscope with mechanical stage.
 - 1 hand microtome for collodian sections complete with two knives.
 - 1 freezing microtome complete with gas tank and two knives (automatic).
 - 1 steel cabinet for filing pathological slides.
 - 12 museum jars for pathological material, assorted sizes.
 - 2 microscope lamps, electric.
 - 1 dark field illuminator.
 - Staining dishes, section lifters and needles for pathological sections.
 - American slender dishes with ground covers for slides—12.
 - 1 autopsy set complete (instruments) in canvas cover.
 - 1 Frens electric incubator, 18x16x20 on stand.
 - 1 Frens electric oven, 12x12x12.
 - 1 Arnold sterilizer.
 - 1 autoclave, gas heated, vertical form.

- 1 sterilizer, hot air, Lautenschlaeger Form.
- 1 sterilizer, hot air, Lautenschlaeger Form, high.
- 1 water still, automatic.
- 1 large centrifuge, International electric. S tube head, with Babcock trunnion cups, complete.
- 1 large water bath for serological work.
- 1 small water bath.
- 1 bacteria counting apparatus, Wolfhuegels, complete.
- Petri dishes, standard size..... 100
- Platinum needles..... 4
- 1 c.c. pipettes graduated 1/100..... 100
- 5 c.c. pipettes graduated 1/10ths..... 20
- 10 c.c. pipettes graduated 1/10ths..... 15
- 100 c.c. pipette..... 1
- 50 c.c. pipette..... 1
- Bunsen burners..... 6
- Flasks, boiling, Pyrex, 2000 c.c..... 2
- Flasks, boiling, Pyrex, 1000 c.c..... 7
- Flasks, boiling, Pyrex, 500 c.c..... 4
- Erlenmeyer Flasks, 1000 c.c..... 3
- Flasks, boiling, Pyrex, 250 c.c..... 2
- Erlenmeyer Flasks, 500 c.c..... 3
- Erlenmeyer Flasks, 250 c.c..... 3
- Erlenmeyer Flasks, 100 c.c..... 9
- Erlenmeyer Flasks, 50 c.c..... 6
- Test tubes, assorted sizes..... 750



Fig. 2.—Rear view of the main room of the Warren County Bacteriological Laboratory.

- Staining bottles (dropping)..... 12
- Staining jars, Coplin..... 12
- Dyes (powder form), culture media material, Slides (glass) test tube racks.
- Wire baskets..... 20
- Pipette containers, copper..... 4
- 1 Van Slyke and Cullen urea apparatus for 8 determinations.
- B. Blood Chemistry and Estimation of Renal Function.
- 1 Dubosq colorimeter.
- 1 Bock-Benedict colorimeter.
- 1 Van Slyke Co. apparatus, complete.
- 1 Van Slyke and Cullen urea apparatus for 8 determinations.
- 1 suction and blow motor.
- 1 analytical balance sensitive 1/10th milligram.
- 1 coarse analytical balance.
- 2 burettes, Schellbach with three way glass stopcock.
- 2 burettes, Morse calibrating three way glass stopcock.
- 12 Myers sugar tubes, graduated 3, 4, 10, 15, and 20 c.c.
- 12 sugar tubes graduated 12.5 and 25 c.c.
- Volumetric flasks:
- One..... 2000 c.c.
- Three..... 1000 c.c.
- Two..... 500 c.c.
- One..... 250 c.c.
- Two..... 200 c.c.
- Three..... 100 c.c.
- Two..... 50 c.c.
- Two..... 25 c.c.
- Ostwald-Folin Pipettes
- One..... 25 c.c. Two..... 5 c.c.
- One..... 20 c.c. One..... 4 c.c.
- Two..... 10 c.c. Three..... 8 c.c.
- One..... 9 c.c. Two..... 2.5 c.c.
- One..... 8 c.c. Three..... 2 c.c.
- Two..... 7 c.c. Three..... 1 c.c.
- 2 20 c.c. Pipettes graduated 1/10th.
- Reagents and standard solution and chemicals in powder form.
- Funnels assorted sizes—12.

Graduated cylinders.

- One..... 1000 c.c.
- Three..... 500 c.c.
- Two..... 250 c.c.
- Two..... 100 c.c.
- Two..... 25 c.c.
- Two..... 10 c.c.

Lucer syringes

- One..... 30 c.c. One..... 5 c.c.
- One..... 20 c.c. Two..... 2 c.c.
- One..... 10 c.c.

C. Clinical Pathology:

- Blood coagulation time apparatus..... 1
- American standard Haemacytometers with Levy counting chambers double complete..... 2
- Counting chamber with Fuch-Rosenthal ruling..... 1
- Haemocytometer, Sahli..... 1
- Blood lancet, spring, automatic..... 2
- One funnel support, 6 funnels..... 1
- Dessicator with plate..... 1
- Burette stands with clamps..... 6
- Burettes, straight, capacity 100 c.c..... 2
- capacity 50 c.c..... 2
- Reagent bottles with glass stoppers..... 13
- Beakers pyrex glass assorted sizes..... 16
- Burette automatic Squibbs..... 2
- Ureometers, Squibbs..... 2
- Albuminometers, Esbach..... 6
- Milk test bottles, 8%..... 24
- Cream test bottles, 50%..... 4
- Cylinders with rim top high..... 4
- Crucibles..... 6
- Ureometer..... 2
- Glass mortars—with pestle..... 2
- Milk dilution bottles..... 43
- Water sample bottles, glass stoppers..... 5
- D. Miscellaneous:
- 1 desk.
- 1 typewriter with desk complete.
- 1 electric fan.
- 1 steel filing cabinet for papers, records, etc.
- 4 large, loose leaf, record filing books.

Resumé of Work

The total number of specimens examined from December 1, 1922, to June 1, 1923 was 3,655. Supplementary tests amounted to 1,794, making 5,449 tests in all. Some of the more important, from a numerical point of view are as follows:

	Number of Specimens
Diphtheria (diagnosis).....	127
Diphtheria (release).....	505
Diphtheria (carrier).....	32
Typhoid and paratyphoid.....	58
Gonorrhea.....	87
Tuberculosis.....	96
Urine analyses.....	1,775
Cell counts and hemoglobin complete.....	155
Differential counts only.....	101
Chemical analyses of blood.....	298
Pathological specimens.....	191
Milk examinations.....	102

Diphtheria Susceptibility Less Among the Poor

Based upon the results of a study of the Schick tests and immunization against diphtheria conducted in the eighth sanitary district of the state of Vermont, Dr. C. W. Kidder, field agent of the United States Public Health Service, states that both the percentage of persons susceptible to diphtheria and the degree of their susceptibility are higher among rural than urban populations, and that both are higher than that of the well-to-do in cities, than in the rural as well as in urban communities susceptibility and incidence are higher among the well-to-do than among the poorer classed, and that native born persons are much more susceptible than the foreign born.

Stockton's Municipal Camp at Silver Lake

Here Campers Experience the Joy of Cold Water, Strong Winds, Long Roads, Brown Earth, Open Fires, Climbing, Swimming, and Strenuous Outdoor Sports

BY STELLA S. SWENSON, CAMP DIRECTOR AND MANAGER, STOCKTON, CALIF.

A NOTEWORTHY thing has been happening the past few years in Stockton and all over our country. Business men and women are discovering a new, continuing element in life—or rather a new application of an old element, the element of play or a good time. The members of the Stockton, Calif., Playground and Recreation Commission have been proclaiming persistently the importance and necessity in life of recreation and play for the adult as well as the child and have been steadily and gradually creating more opportunities for the leisure time of the citizens.

On July 29, 1922, Stockton's Recreation Camp at Silver Lake, on the scenic Alpine Highway, one hundred miles from Stockton, was dedicated to the future health and happiness of the people. It is located, through the kind co-operation of the United States Forest Service, in the El Dorado National Forest, near the route blazed across the Sierra by Kit Carson, the famous scout, when he piloted John C. Fremont across the mountains to California in 1844. Although this road crosses the Sierra at a higher altitude than many of the other routes, the climb is more gradual. For nearly thirty miles the road keeps close to the top of a ridge leading up to the top of the high Sierra. Were it not for the change in the character of the trees—bull pines give way to the mountain pines, and these in turn to the yellow, white, and sugar pines, to firs and cedars and finally to the gnarled and rugged junipers, which are found in the Sierra only at high altitudes—the ascent would hardly be

appreciated. The glacial lakes, three miles long, at an elevation of 7,240 feet, are surrounded by meadows and numerous high bluffs and peaks of unusual historic, geographic, geological, and botanic interest with California's Alpine woods of fir, tamarack, hemlock quaking aspens, and storm beaten junipers circling and towering above all. It is in such a locality as this

but a necessary part of life. The experience of the first season's activities indicate that the attainment of this end is well under way. The total attendance from July 15, to October 1 was 374. Of this number 208 were citizens. Six of these were in camp for a period of three weeks, 44 for two weeks, 42 for one week, and 116 spent week ends at Silver Lake.

From July 15 to July 30, Miss Edith Tubbs, executive secretary, the loved leader of the Camp Fire Girls, affectionately called "Chepalo," directed the activities of the camp for the Camp Fire Girls. She was ably assisted by some twenty-five counsellors who were mature women and who had the health and safety of the girls in mind. The major activities were each directed by some one counsellor who was a specialist in that particular field. The girls followed a very happy daily program, cardinal principles of work, health, and love.



Group of Camp Fire girls making pine needle baskets, trays, and vases at the Stockton Municipal Camp.

that Stockton has a thirty-one acre camp site. A large number of men and women contributed of their time, money, thought and automobiles to put this mountain recreation project under way.

It is the aim of the supporters of this project to provide at the lowest possible cost to the citizens and taxpayers of Stockton an outing in the health-giving, pine- tonic atmosphere of the high Sierra. The directors aim to provide a camp life where Stocktonians may enjoy the sturdy, simple life of the great out-of-doors and may seek the beauties of nature, friends of health, and happiness. It is hoped to demonstrate in a definite concrete manner that camping is not a luxury

To obtain the most from camp and in order to develop a well-balanced life, many girls worked hard for the Minkalo Rank and the Wohelo Legion. The results of their achievements, the honors and ranks, were bestowed at a beautiful ceremony called the Grand Council Fire. The climax of the joyous life and beautiful sentiment and spirit of the girls' two weeks at camp was expressed in the original pageant "Silver Lake, The Camp of Dreams." One hundred and fifty-six girls and counsellors participated in the pageant. It portrayed the primeval forest, careless campers, nature laws and the growing spirit of co-operation and appreciation of the great outdoors; the



Getting ready for the daily swim. Great precautions are always taken. Water sports are directed by life saving guards and instructors in swimming, boating and canoeing.

government's forest policy and the giving back to the people of portions of the public domain for national parks and public camps, special stress being laid on the municipal camp idea which is growing in the west.

Following the two weeks during which the activities of the municipal camp were largely devoted to the encampment of the Camp Fire Girls the camp was used by men, women, and children from the city of Stockton. For the more ambitious campers were available the "joy of cold water, strong winds, long roads, brown earth, open fire, friends on the hike, swimming, diving, rowing, the road to the hill and around the lake." For those who desired the less strenuous activities camp was the place for rest, sound sleep, regular habits and the joy of living.

Some of the activities that may be enjoyed at Silver Lake are: boating, fishing, hiking, and mountain climbing, canoeing, horseback riding, nature lore, swimming, mountain craft, games, singing, dancing, evening entertainments of song, stunts, and story around the camp fire. For those who delight in hiking, exploring, climbing higher and higher for majestic scenery and nature's hidden treasure there is an opportunity for longer and shorter hikes, and also overnight sleeping bag trips to points of unusual interest.

A war canoe holding twelve to twenty persons may be rented at a nominal sum. Nothing is better in training

for team work or unity of action and nothing is prettier than the even rhythmic sweep of a dozen or more paddles.

Mineral Bay, a secluded cove on Silver Lake offers a good sand beach for swimming.

This camp does not accept applications from people in poor health. It is purely a recreational

project for the citizens and tax payers of Stockton. The rates are:

	Adults	6-10 yrs.	3-5 yrs.	1-3 yrs.
Two weeks...	\$25.00	\$20.00	\$15.00	.....
One week...	17.50	15.00	12.50	.....

Children are wanted and welcomed at



The interior of the temporary kitchen. Two paid cooks and two paid dishwashers and handy men are employed. The campers give one hour of camp service each day; usually consisting of preparing the fruits and vegetables, setting the table and serving meals, and planning the Camp Fire program. Over week-ends 260 have been served at one meal.

the camp and special activities are conducted for them two hours every day.

Owing to the low cost, each camper is required to render an average of one hour's service daily as outlined by the camp director. No fire arms are allowed in the camp, boats, horses and guides are for hire, and the Stockton Public Library maintains a branch at the camp during the summer.

The equipment consists of a rustic log cabin, 32x64 feet, for a social hall and dining room with fireplace, piano,

violin, the small library just mentioned, tables and chairs; 24 floored tents each in a picturesque setting; 135 individual cots, with mattresses and mattress covers. Campers are required to furnish their own blankets. An excellent athletic field provides space for all kinds of games, and a children's playground with apparatus and play equipment is a special attraction. Cool and safe water is piped from mountain springs and all sanitary facilities of the camp are in accordance with specifications of the United States Forest Service. An outdoor fireplace, crowned with a pine tree theatre affords an artistic setting for twilight and evening gatherings.

The Log Cabin Lodge, the first permanent unit of the camp, is built of tamarack fir, and granite. It has been characterized by the National Forest Supervisor, as the finest log building in the mountains. This was in process of construction last summer but is in use this season.

Last year a genuine piece of service was contributed by one of Stockton's kind and generous women when fifteen women and children were given the opportunity to enjoy the camp and become healthier.

This brief description and collection of facts shows what can be done by a municipality to furnish its citizens with excellent recreation at a nominal cost.

The indications for the 1923 season promise even greater success will attend this year's activities than was experienced in 1922.



The Log Cabin Lodge at Silver Lake, the first permanent unit in the camp. It was built by the city of Stockton through its Playground and Recreation Department.

Complexity of the Sewage Disposal Problem of Chicago

Normal Capacity of Present Drainage System Has Been Reached. Its Further Expansion Presents Great Engineering Difficulties and Enormous Expense

BY HARRISON P. EDDY, METCALF & EDDY, CONSULTING ENGINEERS, BOSTON, MASS.

THE sewage of Chicago originally was discharged into Lake Michigan, either directly or indirectly, chiefly the latter, by way of Chicago River. At the same time the water supply of the city was derived from intakes not far remote from the shore. Thus opportunity was continuously afforded for the mingling of the sewage with the waters drawn for domestic supply. This was a condition not only abhorrent to the sentiments of the people, but one fraught with grave danger because of the possibility, if not the certainty, of the transmission by these means of typhoid fever and other water-borne diseases.

A remedy for this condition was sought, and in 1899, only about thirty-four years ago, the Sanitary District of Chicago was formed, with a population of approximately one million persons, and a tributary area of some 185 square miles. Since then this area has been increased from time to time, until in 1921 it comprised nearly four hundred square miles.

The object of the formation of the Sanitary District was "to safeguard the health of the city by so disposing of the sewage that it shall not contaminate the waters of Lake Michigan, the source of water supply."

The major works built by the Sanitary District are illustrated by Figure 1, which also shows a number of the waterworks intakes and their position with reference to the mouth of Chicago River and to the shore line.

This great project may be divided into several sections, the most important being the Main Channel built from Robey Street in the city, to Lockport, a distance of twenty-eight miles. Here it discharges into the Des Plaines River the channel of which was improved for a distance of about six miles to Joliet below which

the Des Plaines River joins with the Kankakee to form the Illinois. The South Branch was improved from the Lake to the easterly end of the main channel at Robey Street. This main channel with the river improvements at either end permitted the reversal of flow in Chicago River, thus sending the sewage which previously flowed to the lake, in a westerly direction to Des Plaines River, and thence through Illinois River to Mississippi River at a point just above St. Louis.

In order that the Des Plaines River, which is parallel with and close to the Drainage Channel, might not overflow its banks when in flood and pass into the Drainage Channel, the river channel was improved for a distance of about thirteen miles above Lockport and nineteen miles of levees were constructed.

It was not intended that these channels, which permitted the reversal of the flow of Chicago River, thus preventing the sewage from reaching the lake, should be open sewers, but provision was made in the charter for the drawing of water from the Lake to the extent of $3\frac{1}{2}$ cubic feet per second for every 1,000 persons. This is equivalent, approximately, to 2,150 gallons per capita per day, which, with the quantity of sewage flow of about three hundred gallons per capita per day results in an allowance of 2,450 gallons of water a day to each person. This amount is available for carrying away the waste products of the community.

Dilution of Sewage

The difficulty in treating sewage so that it shall not be objectionable is due in large measure to the very small, one might say minute, quantity of impurities present in it. It is like the proverbial needle in the hay mow. Only one-tenth of one per cent of the weight of the sewage comprises its impurities. In fact, that is a relatively large estimate. It amounts to only eight and one-third pounds in a

thousand gallons, or four-tenths of a pound in a barrel of fifty gallons. Of these impurities only one-half constitute the objectionable substances, so that after all, treatment of the sewage is required to take out, or change the character of only about two-tenths of a pound of organic impurities in a barrel of sewage.

The sewage of Chicago has been disposed of thus far primarily by the process known as dilution. This is afforded by the water to which I have alluded as being drawn from the Lake. As long as the proportion of sewage to the given volume of water is not too great the quantity of impurities in the sewage, spread out through a large volume of water, are carried away from the city without the production of objectionable conditions.

In 1889 the population of the city was about one million, as previously stated. In 1920 that population had risen to nearly three millions. The quantity of water provided by the charter, to be drawn from the lake in 1920, therefore, would be about ten thousand cubic feet per second. This quantity, I think, is materially in excess of the quantity which the Federal Government has formally permitted Chicago to draw.

The quantity of polluting matter contributed by the population now tributary and the large industries which discharge polluted liquid wastes, has today become so great that the normal diluting capacity of this drainage system appears to have been reached. It is, therefore, of the utmost importance that the district should plan, as it is now doing, measures necessary for so treating the sewage before it reaches the drainage channels that it shall not create objectionable conditions.

Other Processes Available

There are a number of processes available for such treatment, the practicability of which depends upon

*Reprinted through courtesy of the Journal of the Western Engineering Society, Chicago, Illinois.

the extent of purification required and their local feasibility. The organic matter in the sewage, as I have stated, amounts to only about two-tenths of a pound in a barrel of sewage. This matter may be classified as follows: There are the large, coarse, floating solids; there are the heavy mineral matters such as sand, bits of crushed stone and cinders; there are the finer of the coarse suspended solids, which are relatively small and yet are easily seen by the naked eye, and finally there are the dissolved substances and also the colloidal matter which may be grouped with them.

But it is the bacteria in the sewage which are of primary importance with respect to the public health. Many of these are harmless—in fact, are beneficial in their life work—while others may be, and undoubtedly are, pathogenic and, under certain conditions, would be distinctly harmful.

The processes of sewage treatment have to do with the removal or the transmutation of these several classes of materials. It may sometimes be desirable to remove from the sewage the coarse mineral matter, in order to prevent its doing injury to the pumping machinery or unfavorably affecting the performance or other features of the treatment plant. This may be accomplished by the installation of a grit chamber, which is nothing more nor less than an enlargement of the sewer, providing retardation of flow and an opportunity for the settling out of the heavier detritus. The efficiency of such a chamber depends in large measure upon the rate of flow through it, and its length must be such that the particles which it is desired to remove will have settled, before they reach the outlet, to a depth which will prevent their passage. Owing to the variation in the flow of sewage a uniform velocity is

difficult to maintain and, unfortunately, unless the flow is maintained at such a speed as to admit of only the deposition of the silt, sand, and gravel, such organic matters as fruit seeds, coffee grounds, and bits of offal will settle out and result in offensive conditions. Experiments made at Rochester indicate that for conditions in this country a mean velocity of approximately one foot per second is satisfactory.

If it be simply necessary to take

permissible loss of head. It is usually set at right angles to the axis of the channel, but if this be very narrow additional rack area may be gained by constructing it curved in plan or by setting it on a very flat slope. Experience at Boston has indicated that the desirable area of rack is not less than 150 per cent of that of the channel leading to it.

Sometimes a series of racks is used, as for instance at Manchester, England, where the first is composed of

1x4½ inch bars set six inches apart, and is destined to catch large timbers and heavy matter which would break a lighter structure. From this the sewage passes through a rack of ¾ inch bars set 1½ inch apart, and thence through a grit chamber, from which it goes to the third and final rack, of ¾ inch bars with ½ inch openings.

Where the racks are "fixed," or set stationary, it is necessary either to rake them by hand or to utilize some mechanical combination of rakes and brushes. Hand cleaning involves a great deal of labor, especially where the racks are set at a considerable depth below the operating floor. Movable racks have, therefore, been evolved, of which there are a number of types, the most popular in this country being the so-called "cage screen." This consists of a plate or grid bottom and three sides of bars or rods spaced about an inch apart. The fourth, or open, side is placed broadway of the channel and receives the flow, the sewage pass-

ing out through the back and to some extent also through the sides. When it is necessary to clean the cage it is raised to the surface, carrying in it the accumulated debris and trash. Usually a duplicate screen is provided which can be immediately lowered to take its place. This type of rack also is sometimes used in series, as at the Ward Street Station in Boston. Here also the first row of ¾ inch bars has

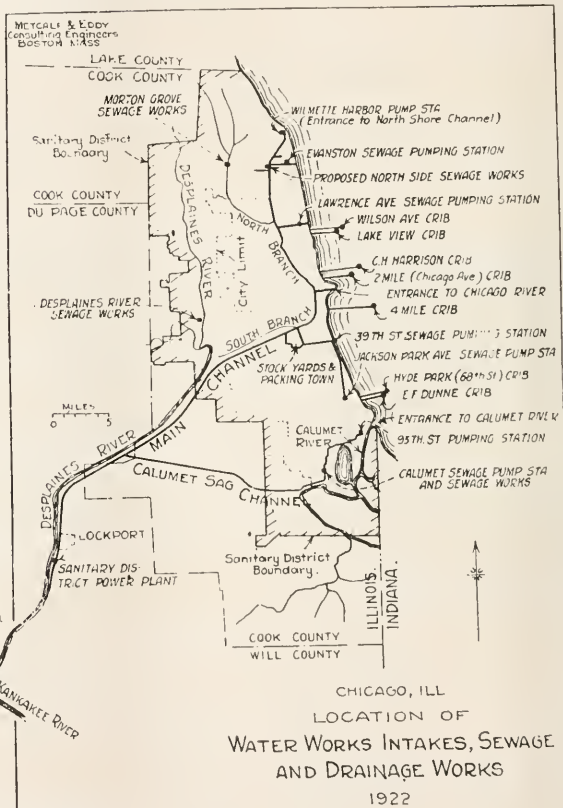


Fig. 1.—Map of Sanitary District, showing relation of water supply and sewage disposal works.

out the very coarse substances, this may be done by the use of racks. These are constructed of either square or round bars about ¾ inch in size, set parallel and spaced from ½ to 1½ inches in the clear, depending upon the character or the amount of the material which it is desired to remove. The length of rack depends on the amount of sewage to be screened, the size of openings, and the

been supplemented by a second row staggered behind them at such intervals as to give an actual diagonal measurement between bars, of 1 inch. The resulting ratio of screen opening to sewer area, with one screen only operating, is 162 per cent and with both screens 324 per cent.

Of the other movable racks there is the wing type, formed like a paddle wheel, the vanes consisting of bar racks which sweep downward through the sewage and up clear of it, with their load of screenings. These are mechanically pushed from the rack by a brush and delivered on to a belt conveyor. The essential advantage of this type is that all bearings are above the level of the sewage. The number of wings used governs their size and also the depth of depression in the channel of the sewer, through which they sweep.

Where the flow is not great three- or four-rack installations may serve, but in Germany five- and even six-rack screens are used. The Geiger rack is a modification of this wing type, the vanes being curved instead of straight. The two at Gleiwitz are 12.5 ft. in diameter and 5.9 ft. wide, with vanes composed of V-shaped rods 0.12 in. apart.

The Link Belt rack is a broad endless link belt, moving on sheaves, set at top and bottom. It is placed at an angle and may be swung completely above the sewage. At Hamburg where this type was adopted because of the range in the tides and the elevations of the sewers, the links are bars 14.2 inches long, held in angle iron frames about 9.8 ft. long and 15 inches wide. Each rack has 46 of these frames and a total of 14,000 links. It is cleaned very thoroughly by a rake with rubber tires, which extends entirely across the width of the rack.

It has been estimated that coarse screens will remove from less than 5 to perhaps 10 p.p.m. of coarse material from the sewage, whereas from 20 to 70 parts of suspended matter may be removed by the use of fine screens, under favorable conditions. Of these there are several forms. One type is the drum screen, shown in Figure 2—a revolving cylinder which permits the sewage to pass from the outside chamber into the inside

of the drum and out through the end. The centrifugal motion imparted to the sewage causes that inside the drum to rise a little higher than that in the chamber in which the drum revolves, permitting an outward flow of a small portion of the screened sewage through the meshes in the screen, thus washing off the solids which adhere to the screen. This results in the formation of a relatively thick mixture of solids in this portion of the outflowing sewage, which is carried over a baffle into a sedimentation compartment when the solids which settled out are lifted by means of a perforated bucket elevator out of the pit and dropped into a suitable receptacle. The main portion of the effluent, which passes out at the end of the drum, is conducted past the sedimentation compartment to the

chambers or fine screens, the sewage, if further treatment be desired, may be passed through sedimentation tanks. By this means not only the mineral solids but also much putrescible organic matter which would tend to form offensive sludge deposits or clog the various features of the treatment plant, may be removed. Such structures are designated either as horizontal or as vertical flow tanks depending upon the direction of flow of the sewage through them. This is governed by the shape of the tank and the place of introduction of the sewage, the "vertical-flow" tanks being usually cylindrical with the influent introduced near the bottom and overflowing at the top, while the "horizontal-flow" tanks are rectangular and shallow with the influent introduced at one end and flowing out at the other.

The tanks may be operated either upon the fill-and-draw or upon the continuous-flow method. Theoretically where the sewage is allowed to become quiescent and then after a period of settlement the supernatant liquor is all drawn off the sludge at the bottom of the tank may be disturbed and some of it may flow away with the effluent. Also with this intermittent method of operation there is a loss of available head of the sewage, which may be objectionable. Again, during the time occupied by filling and emptying, the process of purification is temporarily suspended. It has been found in practice that the volume of sludge is generally increased by its frequent removal. With the continuous method of operation, however, the sludge becomes more compact and contains a higher percentage of solids. Such tanks may be provided with baffle boards for maintaining uniformity of flow and they may be operated in series or in parallel. The sludge is drawn off through sludge pipes, some times with the aid of hand scraping or squeegeeing. This sludge may contain from 2 to 10 or even 15 per cent of solids in a given volume of sludge, and as this is removed in practically its initial condition it is frequently more or less putrescible and objectionable in character.

To overcome this difficulty with offensive—(Continued on page 662)

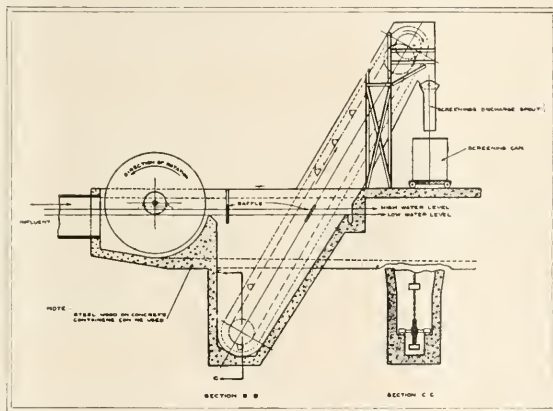


Fig. 2—Drum type of screen for removing coarse particles from sewage.

next feature of the treatment process.

Then there is a disc screen which, as its name implies, is a disc of perforated metal. This is set on a shaft so inclined from the vertical as to determine the tilting of the disc. The metal plates of these screens vary from 4.3 to 26.2 feet in diameter and the width of slots from 0.03 to 0.2 inches. The area of openings constitutes somewhere from 23 to 36 per cent of the whole. As the disc revolves it carries up out of the sewage the material strained away. This is removed mechanically by brushes revolving across that portion of the screen which is tilted out of the liquid. One of the most popular screens of this type is known as the "Riensch-Wurl."

After removing the coarser of the suspended matter and the heavier of the mineral matter by racks, grit

Protection Against Dust and Fumes*

Modern Industrial Concentration Emphasizes Anew the Health-Giving Amenities of Pure Air and Sunshine

BY R. C. WILLIAMS, PAST ASSISTANT SURGEON, U.S.P.H.S., WASHINGTON, D. C.

THE fact that persons in certain trades or occupations are frequently affected with special diseases or disabilities resulting from their work has been recognized for several centuries. Hippocrates, one of the earliest medical writers, in his "Epidemics" speaks of the metal digger who breathes with difficulty and is of a pale and wan complexion. Ranazzini, an Italian physician, who, about 1670, wrote "A Treatise of the Diseases of Tradesmen," was among the earliest writers who recognized and described disease resulting from the trades. Ranazzini quotes Hippocrates as stating "that when to find a sick person it behooves us to ask what measures he is under, what was the cause of it, how many days he has been ill, how his belly stands, and what food he ate," and to which Ranazzini adds "and what trade he is of."

Industrial hygiene and sanitation are usually taken to mean the hygiene of the worker and the sanitation of his working place. Modern industrial conditions have brought into being many new and everchanging problems of production, maintenance and transportation. With modern industrial development come many of the old hazards to the worker and in addition others arising from new processes and trades.

The health hazards of industry are numerous. Almost every article we use passes through at least one process that is hazardous to the worker. In the United States alone industrial accidents are estimated to cost the staggering sum of \$1,014,000,000 and this does not include other hundreds of millions that are lost from sickness due directly to health hazards of trade. The United States Government pays approximately three million dollars a year to its employees as compensation for injuries and diseases

that occur as a result of their work.

In many instances industrial accidents and sickness can be prevented. Last year the average number of days lost on account of sickness in several departments of the United States Government and several private industrial concerns was approximately eight days per employee per year. On the other hand, the National Cash

the protection of workers not only commendable as a humanitarian measure but necessary from the standpoint of economical production and the successful operation of a plant.

Place of Dust and Fumes

Dust and fume occupy an important place among the health hazards of industry. Sir Thomas Oliver designates dust and fumes as "foes to industrial life." He further states:

Dust, smoke, and fume are the product of industrial activity to be feared. In what relation do they stand to each other? Dust is usually regarded as matter in a state of fine division, but modern research shows that dust from a medical point of view is something more than this. Smoke and fume differ from dust in being the product of heat and these two again differ from each other in the respect that smoke is the outcome of incomplete combustion of hydrocarbons, such as coal, wood, and oil, while fume is, firstly, a gaseous form of metals, non-metals, and other compounds, and secondly, the return of those from the gaseous to the solid state as seen in the fleu deposit of a lead smelting factory."

Although we are more immediately concerned with the effects of dust on the lungs yet the whole body, including the skin, mucous membranes and the internal organs, suffer in due course

by exposure to dust. We seldom think of the part which dust and smoke have played indirectly in shaping the social habits of the people. How to get rid of dust and fume in the factory, of smoke in the atmosphere, and the incidence of all these on the skin and respiratory organs of man has furnished not only the subject of many a scientific discussion but has stimulated enterprise and encouraged manufacture. In trying to combat their begriming effects we have become a well washed people. The dispersion of these various products has led to the manufacture and use of soap in proportion hitherto unparalleled in the history of man, while these again have indirectly added to employment, wealth and health. Dust and fume begriming agents have therefore done much to socialize mankind, to promote health and to advance civilization for those nations are leading in the path of progress

The Air We Breathe

NINE HUNDRED FIFTY tons of solids per square mile are deposited annually from certain city atmospheres. In the average city air carbon dioxid displaces the life-giving oxygen, and other combustion products interfere with the bactericidal properties of direct sunlight. The larger the town, the more serious such factors become.

Pneumonias, cardiac failure, and many other chronicities have an indirect cause in the prolonged breathing of bad atmospheres. Dust and fumes, therefore, cannot be held strictly as the problem of industry. They are even more complex as problems of public health because their pernicious effects are so often undetected or misconstrued.

Register Company of Dayton, Ohio, has recently made the announcement that their six thousand employees lose, on an average, only 1.5 days per person per year on account of sickness, and this company estimates that every employee-hour saved from sickness was worth forty cents to the company. On this basis they claim a saving of \$120,000 annually because they have been able to reduce their disability rate so far below the average. This striking example of practical results in accident and sickness prevention demonstrates what it is possible to accomplish when careful methods are utilized. The enactment of workmen's compensation laws by practically all of the states renders the prevention of health hazards and

*Address before the Mid-Year Safety Conference, Engineering Section, National Safety Council, Chicago, April 17, 1923.

today whose workers not only require soap and water for themselves but who by the factory dust and smoke they create oblige all of us to resort to similar usage.

Dust is produced or arises from many industrial processes. It is estimated that in the United States approximately four million workers are exposed to the dust hazards. For many years it has been recognized that certain types of diseases occur most frequently among those engaged in dusty trades. The nature of the diseases arising from dust depends upon the character of the dust. In the various industries all kinds of dust are met with. Dusts are generally classified as follows:

(1) Mineral, as quartz dust in mineral mines.

(2) Metallic, as dust from steel polishing.

(3) Vegetable, as dust in cotton mills.

(4) Animal, as dust from fur in felt hat manufacturing.

(5) Organic, as coal dust.

(6) Municipal, dust from streets of cities.

Dust may enter the body by inhalation, through the lungs, by being swallowed with saliva, water or food, and by absorption through the skin. Dusts that are harmful may be spoken of as mechanical and irritative, chemical and toxic, or caustic.

The inhalation of dust most frequently produces an increased susceptibility toward the following classes of diseases:

(1) Respiratory diseases, as tuberculosis, bronchitis, and asthma.

(2) Irritative or inflammatory diseases of the eye, ear, nose or throat, as shown by an undue prevalence of chronic inflammatory conditions of these organs in lime, cement and hair workers.

(3) Dental decay, as shown by the undue prevalence of dental decay among sugar workers.

(4) Skin diseases, as shown by the unusual prevalence of furuncles and eczema in persons exposed to mineral, metallic, sugar, flour and other dusts.

Sir Thomas Oliver, in his book "Diseases of Occupation" has the following to say regarding the amount of dust in the atmosphere:

The amount of dust in the cubic meter of air will vary from 0 mgm. in the clean air of a dwelling house to 175 mgm. in such an industry as felt shoe making. In a dusty trade like cement making, Arens found when no work was being done 130 mgm. of dust in one cubic meter of air and during work when the crushing machines were running 224 mgm. According to Heese a workman following his occupation for ten hours a day would inhale the following quantities

of dust in grams:

	Per Day	300 Days Per Year
Horse hair workers	0.05	15
Saw mills	0.09	27
Flour mills	0.125	37.5
Iron foundry	0.14	42
Tobacco workers	0.36	108.
Chemical works	1.12	336.

A vast amount of research and investigation has been made into the dust problem in industry. The usually accepted view on the subject as expressed by Dr. E. L. Collis is that in general dusts appear to be more injurious as their chemical composition differs from that of the human body or from elements of which the body is normally composed. Thus in the case of lime dust (a normal constituent of the body) notwithstanding its angular form, it is a feeble irritant to lung tissue.

Despite the great amount of research work that has been done on dust and its effects, there still remains much important work that needs to be done on this subject. In making dust counts the "standard unit" is the measurement usually adopted. This term was adopted by the American Public Health Association to distinguish particles of about twenty microns (1/1250 of an inch) in diameter down to the limit of ready recognition under the microscope (about one micron or 1/25,000 of an inch in diameter). But this is not always accurate and there frequently arises error. As yet no definite conclusion has been reached as to the best type of instruments to be used in the collection of dust samples, neither are there definite conclusions as to the sizes of dust particles that are most dangerous to health.

At the present time the consensus of opinion is that the dangerous dust particles are below ten microns, or 1/2500 of an inch in size. This was largely arrived at through work done in connection with studies made of metal miners in South Africa. Post mortem examinations were made, and from specimens of the lung so obtained, were dissolved out the particles of silicious dust. Thus allowing actual microscopic examination and measurement of silicious dust particles found in the lungs.

Realizing the great importance of dust as an industrial health hazard, and in view of the fact that many problems of the effect of dust are as yet unsolved, the United States Public Health Service, through the office of Industrial Hygiene and Sanitation, has begun a comprehensive study of the dust problem in its relation to the effect upon the human body and to the

causation of disease. This study will cover a period of two or three years and will include the classes of dust previously mentioned. The more important points to be covered in this study are:

(1) A study to determine the best methods of collecting dusts of the various classes.

(2) A study from post mortem examinations to determine the measurements of the dangerous particles in the various classes of dust.

(3) A study to determine specific standards and distinctions for the different classes of dusts.

(4) Morbidity and mortality studies to determine the relative harmfulness of different classes of dust.

These studies have already begun on organic dusts at Wilkes-Barre, Pa., and will continue on metallic dust at Meridan, Conn. Studies on the other four classes of dust will be made at four other places. Already the first item has been practically completed and a satisfactory method has been devised for collecting dust samples. There are three usually accepted methods of collecting dust, the Palmer method, the sugar method, and the Konimeter or impinger method. The method that has been developed and that has proven satisfactory is a combination of the Palmer and impinger method.

Fumes, as has been previously mentioned, are the gaseous forms of metals, non-metals and their compounds and also the return of these from the gaseous and solid state. The effects of fumes are largely specific for each substance and it would be necessary to name each special substance in order to discuss the physical effects of various fumes. Obviously, this is impossible. Only a few examples of the more common fumes that cause hazards will be mentioned.

Among the harmful fumes that are found in industry may be mentioned lead, brass, arsenic, mercury, zinc, and other metals, illuminating gas, gases from coal and coke, coal gas, carbon monoxid, carbon dioxid, sulphur dioxid, mineral acids, tar and creosote, wood alcohol, smoke, chlorin, ammonia, naphtha, benzine, gasoline, benzol and many others.

The harmful effects of fumes upon workers depends upon several factors: (1) the amount and length of exposure; (2) the concentration or strength of the fume; (3) the absence or use of protective devices; (4) individual susceptibility; (5) character of fume.—(Continued on page 670)

Health in the Girls' Continuation School of Newark, N. J.

The Findings Leave no Doubt as to the Need of Systematic Health Instruction and Supervision for this Particular Group

By MARY REESOR, M.D., NEW YORK CITY.

IN APRIL 1922 the author was asked by Dr. Geo. F. Holes, director of medical inspection in the Newark schools, and by Mr. Owen R. Lovejoy, general secretary of the National Child Labor Committee to make a study of the health problems of the Girls' Continuation School in Newark, N. J., with a view to determining whether or not systematic medical inspection and health supervision could be carried on effectively under conditions necessarily existing in continuation schools. On the basis of this study it was hoped there might be presented a plan for the development of health work along modern and effective lines which should be especially adapted to meet the needs of the girls in this particular school.

On the health side the needs of the girls in the school in which this study was made, are rather clearly defined. A moment's study of these girls, convinces one that they need training in the fundamentals of personal and civic health. One sees at a glance how lacking they are in normal physical development: how little they know of the joyousness and self respect associated with just being clean and well cared for. One must appreciate the responsibility assumed by a school which these girls are forced to attend even for one half day each week. One realizes anew how in our training for citizenship we do not always appreciate fully the force back of socialized health and normal physical development.

A statistical study was admirably made in this school just a year ago

by Dr. H. H. Mitchell, health agent for the National Child Labor Committee. His findings were presented in an exhaustive report. Dr. Mitchell examined most carefully twelve hundred boys and girls in the continuation schools in Newark. His findings leave no doubt as to the need for systematic health instruction and

on Monday morning, has an acute cold with sore throat, we can advise her as to abortive treatment, but we have no opportunity of seeing her at school until the next Monday morning. Meantime she is left to exercise her own judgment as to whether she should remain at home or attempt to continue her work at factory or shop. Parents depending upon the wages these girls earn, are apt to minimize ailments and urge their daughters to continue work if possible.

Much can be done to meet this situation if both doctor and nurse are present to supervise daily inspection, to maintain a carefully planned follow-up system, and to obtain closer co-operation between school and employer. Acute illnesses could thus be detected and followed up in homes and factories.

(2) These pupils have little time at their disposal.

In order to visit a clinic or hospital to which she may be referred by the examining physician, a girl must either utilize her half day regularly devoted to school work or she must ask her employer for "time off."

At the school we gladly grant permission to the girls to use school time for this purpose. If, however, the clinic to which she is referred is not held on that particular half day she attends school, we cannot be of much assistance to her.

(3) Definite health standards have not been established for pupils in this type of school.

When a girl is examined for her working papers, she knows she must obtain dental care if the examining physician or nurse recommends it. If she disregards these recommendations she knows the desired working papers will be denied her. When the work-

Where the School Girl Works

OF ALL the children in the United States 346,610 girls, or 5.6 per cent, were reported by census enumerators as gainfully employed in 1920. Of the working children, both boys and girls, 17.5 per cent were employed in manufacturing and mechanical industries, the highest percentage in non-agricultural pursuits being employed in the New England States.

Age, educational, and physical standards vary because regulation is a function of state rather than federal legislation. Practically the only regulation of many types of child labor results indirectly from the operation of the compulsory school attendance laws. Hence the significance of any study of health conditions in this group.

supervision in continuation schools.

With these needs definitely enumerated there appeared at once certain handicaps to the carrying on of systematic health work in a school of this unusual type.

The following enumeration of these difficulties may serve to make plain to those not intimately acquainted with the conditions, the complicated problems presented for solution.

(1) The pupils in this school attend school but one half day each week.

If, for instance, a girl examined

*Condensed from the Original Report of survey of health conditions in the Girls' Continuation School, Newark, N. J.

ing papers are obtained, she enjoys a refreshing sense of independence and she frequently exercises this new possession by resenting further health interference.

This is entirely the result of ignorance. If an interested doctor will spend one hour examining these girls, he will be convinced that they are ready and willing to be taught. They respond with true enthusiasm when they are convinced that the doctor has something worth while to tell them.

It is true that they are not interested in a formal physical examination. Here is where the educational health work counts. No doctor can rush girls through a hurried routine examination, with his eyes on the clock, fearing that he has given more than the allotted five or ten minutes to each girl, and expect to get results or to elicit interest or cooperation from the girls under examination.

Such formal, routine examinations are useless in any school, but in the type of school with which we are here dealing, they are positively harmful. They give these ignorant, dependent girls an entirely wrong idea of what health education means.

The first days we examined at the Girls' Continuation School in Newark, the girls feared the examination. If a girl were told when to present herself for examination, we discovered she found some excuse for being absent from school that half day. After a few days, as the girls who had been examined told other girls about it, this feeling of fear disappeared. When it was announced in the rooms that on a certain day the doctor would see the girls who wished to talk over with her problems relating to their health, the examining room and corridor outside the room were filled with girls waiting "to see the doctor." They brought to me their personal secret problems and asked for help in their solution.

Sickness Does Not Pay

Fortunately, employers are beginning to realize that the sickly employee is not a paying proposition. He knows that it pays to investigate the health as well as the working papers of the girls on whom he depends so largely for his gains. Employees are beginning to realize that they must measure up to certain health standards or their places will be filled by those more physically fit.

There will always be a certain number of industrial girls who will have to be forced into hygienic living through fear of "losing their jobs." While this may not be one of the

highest health ideals, it is nevertheless, a very helpful one in helping us bridge the gap between cure and prevention.

(4) Follow-up work in this type of school is difficult.

The girls in this school come from many different parts of the city and from various neighboring towns. This wide distribution is what makes the problem of follow-up work a very difficult one.

This school is extending its work and influence into the homes with definite good results. The teachers in the school are visiting places of employment and studying the conditions under which the girls work. The school nurse is visiting homes, advising and helping parents, studying home conditions and striving in every possible way to improve the living conditions. The nurse visits clinics and gets reports of examinations. She calls upon private doctors and obtains data on past illnesses of the girls when such data is needed by us in planning a health program.

If a department of home and factory visitation can be organized and administered efficiently much good will surely be accomplished.

It was evident that in the few weeks at our disposal, we could examine only a small percentage of the two thousand girls attending the school.

In order to obtain findings in a representative group, selection for examination was made:

(1) From the class made up of the highest type of girl the school afforded and from the class composed of girls who physically and mentally represented the lowest type in the school.

(2) From girls selected for perfect attendance and high class records and those with poor attendance and low class records.

(3) From girls selected who were just entering the school and those ready to leave the school.

(4) From girls employed in factories and shops and those working in their own homes or working out as mother's helpers.

(5) From girls with good home environment and those living under the most unhygienic surroundings.

(6) Finally we permitted the girls to volunteer for examinations. There appeared in this group, girls who said they were perfectly well, those who were acutely ill, and others who thought they were not as well as usual.

In all, two hundred examinations were made.

As a result of these examinations we found that the health needs of these girls fell easily into three general groups: (1) hygienic; (2) orthopedic and postural; and (3) nutritional.

Examination Findings

Of the 200 girls questioned, 10 per cent bathed every 2 or 3 months, 25 per cent bathed every month, 60 per cent bathed at indefinite periods, 5 per cent bathed once a week and no one bathed daily. While at first it seemed incredible that in a crowded city, girls could bathe so infrequently and yet remain members of society, findings verified their statements. Some of the skin conditions found were indescribable. Stripping the girls to the waist revealed conditions which astonished even the principal, who has been associated with these girls since the opening of the school. Only 5 per cent were found to have well cared for skin. About 12 per cent of the girls had acne. To our surprise not a case of scabies was found, although we were told by one of the nurses in a continuation school in New York City that the control of scabies was one of her most perplexing problems.

The greater number of the girls arrange their hair simply. Many of the girls have their hair bobbed. The nurse and teachers have been waging war against pediculi, evidently with fairly encouraging results: 75 per cent were found to have nits; 33 per cent were found to have pediculi. Four months ago 90 per cent of the girls had nits and 50 per cent had pediculi. Of those who have pediculi now, practically all are girls just entering the school.

Although the girls had had their teeth examined and supposedly cared for before receiving their working papers, we found a surprising number of girls in need of dental care—about 35 per cent of those examined.

Many of the girls have never possessed or used a tooth brush. Few of the girls seem to appreciate the close relationship of a clean mouth to good health.

Nails were found to be uncared for in ninety-five per cent of cases. Girls working with furs, tobacco, copper wiring, etc. were found in a number of cases to have infection about the nails. Many of the girls bite their nails and have little appreciation for the teaching that unclean fingers should be kept out of the mouth and away from the face.

A few of the girls apologized for conditions and confessed they never wash their stockings. They wear them

until they wear out. None of the girls have had instruction in the hygiene of menstruation.

On warm days body odors were especially offensive. A few of the girls attempted to counteract these odors with highly scented talcum powders, others seemed not to be sensitive to the situation and failed entirely to see the social problem involved. Many of the girls said they would bathe if there were facilities for doing so in their homes. We appreciate the force of this argument but labored no less earnestly to make them see that a fairly satisfactory bath may be taken with a pitcher of water in an ordinary basin. We referred them to the public baths and numbers of the girls have reported to the nurse that they have gone to these bathing places and are having at least one bath each week.

Class room inspection is resulting in improved conditions of the hands and hair, and class room instruction as to the care of the body, underwear and stocking, etc., is resulting in a cleaner and more wholesome school room atmosphere.

In judging and advising these girls we must keep constantly in mind the conditions under which they live and work. It is to be remembered that many of them are foreigners with ideals very different from ours. It is a simple matter for us to tell girls they should drink milk, eat green vegetables and fresh fruit. We do not always realize that many of the foreign mothers provide nothing but coffee for their children to drink, and scores of them never cook a green vegetable. It must be a matter of educating the children through the school, and the parents through the children.

In no part of the examination did the girls seem so much interested as in that of posture. These girls do not like to be told they have conditions which detract from personal charm and attractiveness. A hollow chest with prominent clavicles, does not appeal to the girl rejoicing in the thrills of wearing low necked evening gowns to dances. Little does she care how many decayed teeth she has in her mouth if her lips are properly rouged or how unclean her body is if she is coated with a covering of highly scented talcum powder.

Of the girls examined 18 per cent have weak feet. Many of the girls have bunions, corns and other deformities due to wearing ill fitting shoes. None of the girls complained of pain in the feet though many of them stand all day at their work.

Considering the relation of weight

to age and height, we found that 7 per cent of these girls were not more than ten pounds under weight, and eight per cent not more than 10 pounds over weight. We appreciate the fact that weight is only one of the factors involved in the consideration of nutrition of an individual, yet in studying girls over whom we have so little supervision it must serve as an important criterion.

Many of these girls eat nothing in the morning. They get up late and have to hurry to shop or factory. Others drink two or three cups of black coffee and eat a piece of bread or cake. Comparatively few have cereal or eggs for breakfast. At the luncheon hour they are either not hungry or do not care to eat in the unclean places provided for them. Many of the girls do not bother to carry lunch from home. They sometimes eat a piece of cake or drink a glass of soda water. At night they eat whatever is provided or what appeals most to them. Few of the girls seem to realize that what they eat bears a direct relationship to what they can do. The idea of eating to live has not functioned with them. Considering everything, these girls are surprisingly well nourished. They seem to thrive in spite of and not on account of what they eat.

Miscellaneous Conditions

Certain conditions which do not fall directly or conclusively under any one of the headings in our classification of defects, may be noted as follows:

Tuberculosis is difficult to detect during the typical superficial school examination unless there are definite lesions with accompanying frank symptoms. Two per cent of the girls examined were classed as suspicious. These girls were referred to a special clinic for further study.

In the three cases of definite organic cardiac involvement which were noted, compensation was fairly good. These girls were conscious of heart conditions though they had not been told by a doctor that their hearts were affected. They realized they could not run for cars, climb stairs, or take long hikes. With care they go about their work with little discomfort. They were referred to a cardiac clinic for further examination and treatment.

In 15 per cent of the cases examined the thyroid was found to be slightly enlarged; in 4 per cent markedly enlarged. In only one case was the enlarged thyroid gland accompanied by cardiac and tremor symptoms. This girl is under the care of

a private physician for the condition.

A number of girls have had tonsillectomies performed as the result of recommendations made at the time they were examined for working papers. We find that 20 per cent of girls examined had slightly enlarged tonsils, and 10 per cent had markedly enlarged tonsils with attending symptoms and abnormalities. These girls have been referred to clinics, hospitals or private physicians for care.

Four per cent of the girls examined have not yet menstruated; 5 per cent have had menostasis for periods varying from six weeks to three months; 10 per cent have had dysmenorrhea at times.

Considering the fact that these girls are between 14-16 years of age these slight variations from the normal seems insignificant.

Five per cent of the girls have defective vision. In nearly all cases of defective visual acuity, glasses had been obtained before the working papers were granted. Many of the girls do not wear their glasses as directed.

It seems apparent from the present study that if efficient health work is to be carried on in this school there must be proper and adequate equipment for the work, and an organized system of health education, based upon a simple practicable health program.

The physician is named as the most important part of the equipment because this arrangement shows the logical relation of the physician to this entire project.

We do not undervalue the routine examination, but we do feel that too often the entire procedure is mechanical, hurried, and lacking in the human note and contact so necessary in the process of health education. These girls must be taught as well as examined.

The physician who undertakes this work should be genuinely interested and should have faith in it. He should possess a personality which will inspire the confidence of the teachers and pupils in the school and which will promote a fine spirit of cooperation.

In the carrying on of health work, the value of a well trained, interested, efficient nurse can scarcely be overestimated. She is the link between the doctor and the school; between the school and the home. It is she who makes it possible for the medical examination to function in the lives of the girls who are examined.

The examination room need not be a large room, and elaborate equipment is not necessary. It should be light, airy, and—(Continued on page 652)

Reaching Workmen as Citizens With the Safety Idea*

St. Louis Reduced Street Car Accidents by 56 Per Cent, Deaths by Steam Railway Accidents by 60 Per Cent, and Fatalities from Industrial Accident by 86 Per Cent Over a Period of Five Years

By C. W. PRICE, PUBLIC SAFETY DIVISION, ELLIOTT SERVICE COMPANY, NEW YORK CITY.

IN ST. LOUIS, during 1917 one hundred ten workmen were killed by industrial accidents; in 1922 only fifteen were killed, although the actual number of workmen employed had materially increased. Industrial managers will naturally ask the question "How was this accomplished?" If you should ask any one of a hundred industrial managers in St. Louis he would tell you that in part it was accomplished through the intensive educational effort along safety lines made in the individual plants, but in a much larger part it was accomplished through a community safety campaign.

What has happened in St. Louis is happening to many industrial centers. Employers of labor are beginning to see that when their workmen are reached outside of the plant and become interested in safety in the home and on the street, they return to the plant not only interested as employees but, more important, convinced as fathers and as citizens of the value of safety to them and their families.

The first important step in the accident prevention movement in this country was the discovery that safety can be organized in an industrial plant through a continuous campaign of education, and that a reduction of from 75 to 90 per cent in deaths and serious injuries can be effected. The second great forward step—and this was made within the last five years—was the discovery that community safety has a vital bearing on industrial safety; that it is indispensable to the final solution of the industrial accident problem.

Industrial managers are now interested in community safety not only because it helps the safety work within the plant but because it insures them against the loss of the services of their workmen because of death or serious injury outside of the plant. For instance, in 1920 the Ford Motor

Company of Detroit with fifty thousand workmen lost one workman during the year on account of an accident within the plant, while ten valuable workmen were killed and several hundred were seriously injured outside of the plant.

Traffic Safety

Employers of labor are also vitally interested in traffic safety because of the number of commercial vehicles which they have constantly traveling on the streets and because of the increasing cost of public liability insurance. This new effort among employers of labor to extend the safety campaign beyond the walls of the factory and reach the workmen in their homes is in line with the recent development of the whole industrial relations movement which extends its effort beyond the plant to interest the workmen in matters of thrift, health, education, and Americanization.

The question is, "can safety be organized in a community with a continuous year-round campaign of education as it has been successfully organized in the large industries?" That it can be done is evidenced by the records of St. Louis, Milwaukee, Washington, and other cities. Comparing the records of St. Louis in 1917 with the record of 1922, deaths from street car accidents were reduced 56 per cent, deaths from steam railway accidents were reduced 60 per cent, industrial deaths were reduced 86 per cent, and deaths from automobile accidents were reduced from 32 to 13 per 10,000 machines, or the records of the reduction in automobile accidents is especially significant when we consider that during the last five years the number of automobiles in St. Louis increased from 24,000 to 92,000.

In 1920 the Milwaukee Association of Commerce organized a safety bureau and during the next two years as a result of their efforts, accidental deaths from all causes were reduced 24 per cent, and deaths from automobile accidents were reduced more than

50 per cent. Washington, D. C., has set a new high record of achievement during the first few months of its permanent safety campaign. Following a successful safety week in November, 1922, the Washington Safety Council was organized and began to function February 1st, 1923. During February and March accidental deaths from all causes were reduced 32 per cent as compared with the record for 1922, traffic deaths were reduced 43 per cent, and deaths to children were reduced 85 per cent.

A careful study of the experience of these three cities and some dozen other cities in which community safety has been successfully organized reveals the significant fact that there are three determining factors which are largely responsible for the success in reaching all of the people and inducing them to stop being careless and to begin being careful. These three factors are: Systematic daily safety instruction in the public and parochial schools, a continuous poster campaign on the streets, and an intensive educational campaign in the daily press.

Safety Education

One-half of all that can be done in any community to reach the adult population will be done through the safety education of school children who carry the safety message home to their parents. This is the testimony of the men who have been most active in cities where successful safety work has been conducted.

In 1918 Dr. E. George Payne, then the director of the Teachers' College in St. Louis, developed a plan of safety instruction which has proved so successful that since that time it has been adopted in thousands of schools over the country with remarkable success. Dr. Payne who is now professor of education at New York University will send the details of this plan to any one on request. The secret of the success of this plan lies in the fact that it does not call for an

*Read before a joint meeting of the Board of Trade and the Transportation Club, Louisville, Ky., June 4, 1923.

additional study in the already overcrowded curriculum, but rather it provides for the use of safety materials in each of the studies already included in the curriculum and provides for safety committees in each school room, thus making safety an active and vital part of the child's daily life.

The second determining factor in a successful community effort is the visualization of safety on the street. The one difficult problem in any safety campaign is to sustain the interest of the public day in and day out through the year. This can only be accomplished by visualizing safety so that the driver or the pedestrian at every turn will be reminded of safety. Washington during the past three months has worked out the first successful plan of accomplishing this through a continuous poster campaign. Slogans with a punch and a grip, a different one each month, are printed on large posters and displayed at the street intersections, at filling stations, on street cars, busses and taxicabs, in all school houses, public buildings and at entrance to factories. The first poster read:—"The Reckless driver is a criminal"—the second—"The Jay Walker is Taking a Short Cut to the Hospital"—and the third—"Better Be Careful than Crippled."

The effectiveness of the poster campaign in arousing public interest and reducing accidents is evidenced by the following statements made by three prominent citizens of Washington:

Mr. William E. Ham, president, Washington Railway and Electric Railway Company and president of the Washington Safety Council, said:

The continuous poster campaign conducted in Washington has proved to be one of the most effective means of reaching the public and obtaining their cooperation. It has already assisted in producing a good accident reduction in the past three months.

Mr. J. J. Boobar, vice-president and general manager of the Yellow Taxicab Company and president of the National Association of Taxicab Operators:

Results and my personal observation satisfy me that the plain marking in white of street crossings and safety zones, and the display of posters with a punch at congested street corners and on street cars, taxicabs and trucks is the most efficient means of minimizing street accidents, and carrying a lasting and impressive message to the pedestrians and the drivers.

Majors Sullivan, Superintendent

of the Metropolitan Police:

The safety poster campaign, more than any other single activity, has helped the police department of Washington to curb recklessness and carelessness on our streets, and in two months had assisted in reducing the total number of accidental deaths 32 per cent—traffic deaths 43 per cent and deaths of children 65 per cent.

The newspapers must be named as

Milkmen of Costa Rica



Cleanliness is only relative. The dispenser of foods needs to hamper himself by sanitary methods only to an extent demanded by the purchasers of his wares. In sub-tropical climates the preservation of milk is difficult and the milkman distributes his product within a very small radius from the point of production. Picturesque these Costa Ricans are, but dipped milk would find small market in America.

the third most effective medium through which every home can be reached daily with the safety message. The newspapers can play an important part in building up in the minds of the people a new interest in safety and a new sense of their obligations to cooperate in saving human life.

In every community, however large or however small, safety instruction in the schools, the poster campaign on the streets and the continuous educational campaign through the newspapers can be conducted with equal success and at a nominal cost. The demand everywhere is for definite information regarding ways and means of conducting such a campaign and materials to use in carrying out the program. Such material is now available, including not only specific instructions in regard to the organization and the conducting of the campaign, but complete material for the use of teachers in teaching safety, posters suitable for an entire year's campaign and suggestions, and specific articles for use in the newspapers. This material prepared by men of national reputation and based upon wide experiences in many cities, makes it possible for any group of citizens to successfully organize and conduct a community effort.

Dairy Products Exports and Imports

That the United States is reaching the point where its imports and exports of dairy products almost balance was pointed out by H. E. Van Norman, president of the World's Dairy Congress Association, in an interview dealing with the general international dairy situation. The World's Dairy Congress, for which he is preparing, will be the first world dairy meeting to devote as much attention to the business and economics as to the science of dairying. It will hold its opening sessions at Washington, D. C., on October 2 and 3, 1923; spend a day at Philadelphia, Pa., where the National Dairy Council and the Philadelphia Inter-State Dairy Council will demonstrate their methods of promoting health by educating the public as to the food value of milk, and continue at Syracuse, N. Y., in cooperation with the National Dairy Exposition from October 5 to 10. Mr. Van Norman said:

"The United States has reached a point where the production and consumption of dairy products are almost equal, as is indicated by the fact that its exports and imports of dairy products nearly balance. For several years we have been exporting large quantities of condensed milk, chiefly to the war stricken areas, and we have always imported considerable foreign cheese; so a more careful distribution of our productions would not eliminate our foreign trade in dairy products, even though our production and consumption actually attained a balance.

Red Cross First Aid Railway Car

The American Red Cross is reconditioning for service their first aid railway car. This service was carried on from 1910 to 1917 when it was temporarily discontinued on account of the concentration on war work.

Two surgeons and their assistants accompany the car, one giving full time to the railroads and the other giving most of his time to the Red Cross chapters visited on the various trips. The car is fitted with living accommodation for the staff and a lecture room accommodating fifty persons. The car carries emergency equipment and a reserve supply of food. In case of disaster it can be quickly converted into a thirty bed hospital. (*Red Cross Courier*, June 2, 1923, 2, 22.)

Physical Education on Playgrounds, Limits and Opportunities

When Formal Gymnastic Work Was Taken Out of Doors, It Underwent Complete Transformation and Correctional Work Has Been Replaced by Recreational Features

BY C. E. BREWER, COMMISSIONER, DEPARTMENT OF RECREATION, DETROIT, MICHIGAN.

THE limitations and opportunities of physical education present such a vast field for discussion that it is impossible to cover the whole field within a brief space. The preponderance of argument lies on the side of opportunities for physical education on playgrounds provided facilities are adequate. The opportunities may be divided into three general classes, physical, social, and psychological.

Physical Advantages

Every physical educator knows the metabolic and katabolic process of the human body. The oxidation of food furnishes body energy. The living protoplasm is broken down and built up through chemical changes of muscular tissue. The energy exhibited by a contracting muscle is derived from the oxidation of the fuel substance within it. Oxidation is dependent upon good lungs and good blood circulation to carry the oxygen to where it is needed. Consequently, physical exercises increase lung capacity, which in turn increase circulation, which in turn stimulates oxidation resulting in greater energy, which needs more oxygen to maintain its rate of speed or exercise and so the cycle goes around again.

Social Opportunities

Increased muscular stamina, endurance, better health, and nervous response or reaction would result from exercise under proper and wholesome conditions. This in turn, results in

bodily skill, alertness, precision, graceful and easy body carriage, all of which are necessary for social development.

First, the educational features, which are social in nature, must not be overlooked. Every game, every exercise, has an educational value. We all must learn to exercise our limbs, our senses, and other body muscles, before we learn to think, as they are the instruments of our intelligence. It is to be regretted that the playground and recreation workers, also physical

body is the most important phase of a man's success and that is what our profession is most interested in—making a success of the material or people, with whom we deal. A person whose mind does not control his body is a degenerate and a parasite on society. Muscular action is dependent upon nervous response. If we have the proper nervous response to the impulses or volition, the proper muscular reaction resulting in the muscles executing the wishes of the mind. This discipline of mind



Correctional features of exercises and games are emphasized in this children's group. Though correctional work is of necessity more or less individual, improvement is hastened when the element of play lightens the burden of formal training. And it is more effective in the open.

educators, overlook or lay very minor emphasis on the educational value of games. Through games and exercises, the participant learns team-work, loyalty, cooperation, sportsmanship and other fundamentals of citizenship, which are so essential to the future business man. Every successful business man has had to learn the value of team-work, loyalty, and cooperation before he becomes a success in his chosen field of endeavor. The degree of success depends upon his attitude of mind or the psychological aspects of recreation.

The discipline of the mind over the

over the body, results in coordinated actions and self-control. Self-reliance is developed, resulting in quickness of thought and action so essential to a successful business career. There is no question but that better morals are coordinated with a clean mind and body. If the restrained impulses are pent up and denied expression, they may explode into some form of excess or vice; but if expressed in clean wholesome play or recreation, a better and more contented class of citizenry will be the reward of the faithful physical educator or recreation worker, who has the ideals of the profession.

The advantage of mass athletics or calisthenic work on a playground should not be overlooked, as a larger number can be taken care of than in other forms of team games. Exhibitions, drills, and pageants make big special features of any city's recreation program and the publicity value of these spectacular events must not be overlooked. Physical education and

recreation workers must sell their program to the community and taxpayers—sell or advertise his product to the consumer.

The correctional feature of exercise and games in the open air from a health viewpoint is an opportunity which must not be neglected. Our last draft for the World's War clearly demonstrated that correctional work is needed by nearly 70 per cent of the adults. The place and time to do this is in the gymnasium or on the playground during their youth and then one should continue to keep in "trim," by participating in some form of physical recreation during his adult life.

The limitations can be more briefly and concisely stated, yet they are important and vital.

Formal gymnastic work on a playground has no place in the minds of the children and adults on most play grounds. It depends upon the nationality of the community in which the playground is located. Where turnvereins, sokols and other gymnastic societies exist, the adversion is not so marked as in other communities. Children, as well as adults are antagonistic towards formal work. The child objects, probably because he has so much of it in school. The adults—because there is too close a resemblance between calisthenic work and the machine-like methods of our present day specialized form of employment. One wants to be away from all machine-like procedure and be free and spontaneous. Unfortunately, we are taking our recreation passively instead of actively. We have become affected with "motion-picture-show-itis" and "bleacheritis."

Then too, there is a general lack of facilities to engage in formal work upon the majority of playgrounds. There are no lockers or locker rooms where one can change his civilian clothes to a gym suit, no showers available after a "sweat-up"; the boiling hot sun, dusty playground with a cinder or gravel surface are not conducive factors for participation, particularly where the element of competition is lacking.

The social features are lacking in formal work as there is a feeling of individualism, rather than of team work, particularly in apparatus work and calisthenics, whereas in games of skill—cooperation, team spirit and team play are highly developed. In



The educational value of games lies chiefly in the discipline of mind over body, but the social qualities of team-work, loyalty, cooperation, develop along with interest in the sport.

apparatus work, the period of idleness, i.e.—while one is waiting his turn to perform—gives only a minimum of exercise for a maximum expenditure of time. While waiting ones turn on the apparatus, the interest of the participant is lost and the group wanders away to take part in a game where there is more action.

These are only some of the questions of the opportunities and limitations of physical education work on the playgrounds. Much more could be said in detail, but lack of time forbids. There is no question but that formal physical education work has a place in the program of a playground—just how big a part is a debatable question. Just as the attempt to take formal gymnastics out of doors, back in the 80's of the past century, resulted in the establishment and development of our modern playground system—so the modern physical education and recreation work has resulted in the increased interest of girls and women in athletics. Whether this is a good thing or not remains to be seen. The only advice worth while is the old saying, "Circumstances alter cases." What applies to one playground, one community or a city, may not apply or be feasible or practical on another playground, or in another community or city. All angles of the problem must be gravely considered in arriving at either a negative or affirmative decision to include or exclude physical education work in a playground or recreation program.

Physician Summoned by Radio

The steamship West Cahous, lying at anchor in Baltimore harbor, about nine miles from the city, needed medical help at about 3 a. m. recently

and needed it quickly, says the U. S. Public Health Service. A member of the crew had fallen into the hold and had hurt himself seriously. So the captain of the ship sent a wireless broadcast asking help.

The call was picked up, not in Baltimore, nine miles away, but at Cape May, N. J., about a hundred miles due east of Baltimore. As Cape May was separated from the West Cahous by parts of New Jersey and Delaware and by the eastern shore of Maryland, not to mention Delaware and Chesapeake bays, no direct help was possible.

But the operator was on the job. Promptly he consulted the long distance list in the Baltimore telephone directory and called up the residence of the Public Health Service, surgeon in charge of the Marine Hospital in Baltimore—one hundred miles to the west. The surgeon, roused from sleep to receive the message, asked him to radio certain emergency treatment to the West Cahous and to direct the captain to send a boat to a certain pier in Baltimore, where he would find a surgeon waiting to go out to the ship with him. And so, in the middle of the night, in less than an hour, a wireless-controlled sea-going ambulance reached the side of the injured sailor and brought him to the hospital.

How Athletics are Influencing Dress

Henry D. Curtis, writing in the *Physical Education Review*, expresses as the ideal in dress that it "shall hamper physical activity and the circulation as little as possible and that it will not, through its concealments, remove all incentive to physical perfection." If we might bring our little girls up to wear knickerbockers, we should find that many of the ills from which women suffer would disappear, he says. This movement has already gone further than many of us realize as in some of our western normal schools, practically every young woman appears in trousers on Saturday, and almost no hikes or outings are taken in any other costume.

It is estimated that seagulls in and around New York harbor are effective as scavengers to the extent of serving to dispose of about two hundred and eighty tons of offal a day.

Clean Teeth Not Always Sound*

Preventive Dentistry Takes Account of Prenatal Influence of Mother's Diet and Nutritional Balance During Early Years as Real Factors in Dental Decay

By DR. HAROLD DeW. CROSS, DIRECTOR, FORSYTH DENTAL INFIRMARY FOR CHILDREN, BOSTON, MASS.

INVESTIGATION has shown that 96 per cent of the children who come to this country from the southern part of Europe have sound teeth, while it is well known that the teeth of 96 per cent of American children are defective. Strange to say, too, the vast majority of the foreign children never knew what a toothbrush looked like until they entered American schools.

Good teeth are determined before a child is born and the chances are, even without the use of a toothbrush, teeth that are originally sound and well constructed, will remain sound for many years. The toothbrush does not make good teeth. They are developed the same as any other part or organ of the body, and if they are not well constructed and sound, it will be found that the use of a toothbrush until doomsday will not save them from inevitable decay.

Prenatal influences, proper diet, including coarse whole foods—milk, leafy vegetables, and fruit are the things that make good teeth, not the use of the toothbrush, however child should have the right diet before the birth of her offspring and the child should be breast fed a suitable length of time rather than fed upon any kind of prepared milk or other foods. This makes a great difference in the state of the teeth of a young child.

Herbert Hoover says: "If we could grapple with the whole child situation for one generation, our public health, our economic efficiency and the moral character, sanity, and stability of our people would advance three generations in one."

We have been taught to believe that dentists have much to do with good teeth. The work of the dentist, however, only begins after the teeth are

here, when they are all formed and in whatever condition they are developed in the jaw, which is the result of the prenatal influence, whether good or bad, so far as the teeth are concerned.

We may consider that there are two kinds of dentistry, preventive or public health, of which little is known or practised, and which has to do, principally, with children; and regular, reparative, or technical work, which deals with children over six years of age or with adults. So far as children

are very necessary and also as much care and attention in regard to diet and hygiene should be given when the child is from two to five years of age.

The sixth year in a child's life divides the preventive and reparative care necessary and the limit should not be reached before this care is given. Care in the kindergarten age is better than when in the first grade at six years, and the nursery or pre-school time is better than the kindergarten. So, too, prenatal care is better than the nursery age and is the best and only time to fully realize the importance of primary teeth, and lay the foundation for good and sound permanent teeth.

All adult dentistry diseases, except pyorrhea, are the result of poor tooth development or neglect of the proper diet and hygiene during childhood. Dead teeth, local infections and diseases of the heart, kidneys and joints are the results of childhood neglect of the teeth and, if caries could be eliminated, would prevent all these later complications.

So, use the toothbrush, but do not depend on it as the savior of your teeth.

Mothers, before the baby comes, must take the responsibility of giving good or bad teeth to their offspring and before six years of age, the whole question of good teeth for life will have been decided.

Sleep in Churches

The *Lancet* reports the Bishop of Durham as making a public appeal for better ventilation in churches, stating that in his opinion the ventilation of parish churches tells more directly on the efficiency of the ministrations of the clergy than many other circumstances apparently more relevant, while inattention and restlessness on the part of the congregations result primarily from the breathing of a vitiated atmosphere.



Underwood & Underwood
By all means for ethical reasons teach the toothbrush habit to children who have not acquired it at home. It is far more important, however, that they get lime, mineral salts, and vitamins in their foods to build their bodies with.

are concerned, public health dentistry deals with diet, general and dental hygiene, and prenatal influences. Reparative dentistry has been practically a failure so far as reducing caries is concerned and children still arrive at the first grade in the public school with teeth as bad as if no work had been done for older children. Caries is increasing with children, two-years old, kindergartners, and first graders. We need the art of reparative dentistry, developed as it is to a very high degree of skill, for all those too old to be benefited by preventive dentistry, and that means all over six years of age.

It has been said that a clean tooth never decays, but the teeth must be sound in the beginning to make this true. Prenatal influences and care

*Read before the Massachusetts Health Conference, Springfield, Mass., April 26-28, 1923

The Health Examination Movement

The Examination Advocated Is a Medical Appraisal of the Individual to Ascertain Physical Impairments and Faulty Habits, With a View to Their Correction

By JAMES A. TOBEY, ADMINISTRATIVE SECRETARY, NATIONAL HEALTH COUNCIL, NEW YORK CITY.

PERIODIC physical examinations of all persons have been recommended by progressive sanitarians for many years. The original suggestion, in fact, seems to have been made more than half a century ago, but only within comparatively recent years has the movement received considerable impetus and developed the momentum which promises to make it a real and important factor in the physical welfare of the nation. The movement is not novel, but the present organization of it on a national scale, a task now undertaken by the National Health Council¹, is a new and culminating development.

History of Movement

Before going into the whys and wherefores for health examinations, a brief description of the genesis and evolution of the movement seems worth while. Periodic examinations for life insurance companies were suggested about 1870 by a Dr. Dobell in England, and Dr. Bares, a French hygienist, urged them some twenty years ago, though there is no record of either of these recommendations having been adopted at the time. In April, 1909, Dr. Burnside Foster submitted to the Association of Life Insurance Medical Directors a definite plan of life conservation, which included a recommendation for periodic physical examinations every five years. The Provident Life Insurance Company, of which Dr. E. L. Fisk was medical director, was the first to adopt this plan for its policy holders and did so later in the same year. In 1911, Mr. H. J. Messenger, the actuary of the Travelers Insurance Company, urged life insurance companies to take up these measures. In 1914,

Dr. S. S. Goldwater, commissioner of health of New York City, announced the establishment of the system among the employees of the city health department. The late Dr. H. M. Biggs, commissioner of the New York state health department, also advocated such examinations for a dozen years.

Health examinations in industry began about 1913 in which year Dr. W. Irving Clark published a paper on the subject in the *Journal of the American Medical Association*. The following year Drs. H. E. Mock and J. W. Schereschewsky reported on results of examinations in industry. Physical examinations for the general public have actually been offered on a self-supporting business basis since 1914 by the Life Extension Institute. This organization was first proposed by Mr. Harold A. Ley, who interested a number of prominent persons, including General Gorgas, Mr. Taft, H. P. Davison, F. A. Vanderlip and Charles H. Sabin, who consented to serve as directors.

During the last decade, many other agencies, such as health departments, life insurance companies, hospitals, clinics, industrial concerns, and individual physicians have been taking more and more interest in the proposition. Finally, the American Medical Association, representing the organized medical profession of the country, went on record in 1922 and again in 1923, as favoring periodic medical examinations of apparently healthy individuals. The next step is for the National Health Council to achieve nation-wide success in its health examination campaign.

What is a Health Examination?

The National Health Council advocates "health examinations." A health examination is a thorough medical appraisal of the human system to detect physical and mental impairments and faulty habits of hygiene. Dr. T. Ordway has called it a medical survey, one which is "a systematically arranged record of facts pertaining to the individual to serve as a stimulus and guide for his improvement." Dr.

Louis I. Harris calls it an audit of the physical assets and liabilities and says, "This is the most important and necessary next step in private medical practice as well as in public health work." Dr. Roger I. Lee says that the best thing about such a health examination is that it shows when a person is healthy. He states that it should fulfil three requirements: (1) detection of organic pathology, to be followed by correction, compensation, or control of lesions; (2) detection of non-organic functional disturbances, to be followed by correction; (3) evaluation and classification of each individual as an entity, followed by directions as to suitable future activities.

The reasons why health examinations are beneficial are so obvious that hardly any argument for them is necessary. They are, of course, advantageous to the individual in that they serve to detect the beginnings of organic disease, or to discover the existence of definite physical impairments, of which the person was unaware. Faulty personal habits of living, errors of hygiene, and possible shortcomings in environmental conditions are frequently brought out. For instance, routine examination of freshmen at Harvard College shows that about 80 per cent have had mechanical use of the body, or faulty posture. Over one-third of this 80 per cent had very bad mechanical use. These faulty postures are generally habits and not defects. As an administrative function, health examinations form an excellent method of health education and help to raise the too low standard of national vitality by bringing to light and assisting to correct physical defects of the population as a whole.

Evolution of Public Health

But there is a still more potent reason why the health examination movement is one of the next steps in public health. It is because public health has about reached that stage of development where personal hygiene is getting to be more important than control of one's surroundings, includ-

1. The members of the National Health Council include: American Association of Industrial Physicians and Surgeons; American Child Health Association; American Public Health Association; American Red Cross; American Social Hygiene Association; American Society for the Control of Cancer; Conference of State and Provincial Health Authorities of North America; Council on Health and Public Instruction of the American Medical Association; National Committee for Mental Hygiene; National Committee for the Prevention of Blindness; National Organization for Public Health Nursing; National Tuberculosis Association; United States Public Health Service; and Women's Foundation for Health.

ing in that term both inanimate objects and other human beings. As the public health movement has progressed, sanitary science has triumphed over environmental conditions and, broadly speaking, over many of the communicable diseases. The sanitary engineering phase of public health in which pure water supplies, effective methods of sewage disposal, sanitary production of milk, eradication of insect-borne diseases, improvement in housing, and similar engineering functions, so highly developed under the guidance of such authorities as the late Professor W. T. Sedgwick, has reached the point where now it is usually a matter of routine. Of course, much remains yet to be accomplished, especially in the rural districts, but the field has been well tilled. The seed has been sown and cultivated, the plant well nourished with here and there a barren spot, perhaps, but the harvest is already for the gleaning. Such diseases as typhoid fever are definitely on the wane; the death knell has been sounded for hookworm, malaria, and yellow fever. Diphtheria is being conquered, with now and then, nevertheless, an attempted rally. Man has vanquished smallpox, though this insidious foe is ever watchful for the time when carelessness, apathy, and ignorance may release it to ravage again. The venereal diseases have been recognized as health enemies as well as moral ones; tuberculosis is losing in its fight on human existence; infant mortality is also succumbing. Man seems to be getting the best of the microbe.

As these diseases and their death rates go down, others rise to take their places. Cancer, kidney diseases, heart trouble, and other organic affections seem to be on the increase. The secret in combating these maladies in every case is early diagnosis. For that matter, diagnosis at the very onset is important in checking any disease and applies with special emphasis to many of those we have previously mentioned, such as tuberculosis. The average span of life in this country is increasing, but it would forge ahead much faster if the present knowledge regarding the communicable diseases were universally applied. It will increase even more when the rules of personal hygiene are thoroughly employed. Many more years will be added to this life span when new methods to cope effectively with the organic diseases are devised or discovered. In the meantime, health examinations have a real place in the advancement of our national vitality.

The growth of the health examination movement during the past decade has resulted in the production of some valuable data on the subject. Since there is no really succinct but adequate summary of all of these statistics, it is the purpose of this article briefly to review them. No claim is made for any originality of compilation or presentation of this material, but since the subject is likely to be more or less before public health workers during the next year, due to the propaganda of the National Health Council, it seems worth while to present some of the facts which have been gathered, and which in many instances are of considerable significance. Naturally, a great deal must be omitted. Extensive studies of industrial workers have been carried on and many examinations of infants and school children are on record. Since we are interested primarily in general health examinations for all ages, types, and classes of people, an endeavor will be made to confine this review to that class of data. It will be taken up in chronological order.

Growth of the Movement

Long before health examinations were even thought of, medical inspections of school children were instituted in 1892 as a routine procedure. At first only contagious diseases were looked for, but in 1895 more general examinations were given. Life insurance companies have examined prospective risks for many years and recruits for the army and navy have been looked over as a regular procedure for a long period. The first attempt to offer periodic physical examinations to the general public on a large scale, however, seems to have been that of the Life Extension Institute, which was established in January, 1914. To date (1923) more than 250,000 persons have received medical examinations through the institute. While this is the most extensive group of health examinations extant, tabulated figures of the results of the entire group do not appear to be available. The medical director of the institute, Dr. E. L. Fisk, is authority for the statement, though, that most of the persons examined are found to have physical impairments. Usually, the individual is ignorant of these defects and in a majority of instances they could have been prevented. Of course not all of these defects are disabling, but most of them may retard the efficiency of the individual to some degree and keep him below par.

In examining ten thousand workmen in one hundred industrial plants, the institute found none who were physically perfect (Class 1); 10 per cent had slight impairments (Class 2); 41 per cent had moderate defects requiring advice or minor treatment (Class 3); 35 per cent had moderate defects requiring medical supervision (Class 4); 9 per cent had advanced physical impairments requiring systematic treatment (Class 5); and, finally, 5 per cent needed immediate medical attention (Class 6). Similar results were obtained by the United States Public Health Service in examining nearly a thousand post-office employees by arrangement with the director of welfare of the Post Office Department in 1921. Of 985 who were examined and graded as above, only 5 per 1,000 went in Class 1, 12 per 1,000 in Class 2, 262 per 1,000 in Class 3, 341 per 1,000 in Class 4, 238 per 1,000 in Class 5, and 142 per 1,000 in Class 6. The Life Extension Institute had previously examined one hundred postal employees in New York City at the request of Dr. L. K. Frankel when he was director of welfare of the Post Office Department and obtained results almost exactly the same. All of these figures indicate the serious amount of disabilities and impairments among average groups of industrial workers.

The physical findings of the army draft during the world war have been rather thoroughly discussed, quite copiously alluded to, and often referred to as "the horrible example." The army draft was, however, the only real national physical examination which this country has ever had. About four million male persons between the ages of eighteen and forty-two were examined. The resulting figures of defects serve as an index to the condition of the whole country, bearing in mind that they apply only to men in the prime of life. Of 3,764,000 in the first and second draft, 555,000 were rejected as entirely unfit for service. Of about two million seven hundred thousands called to service, 47 per cent had physical impairments, a figure which Dr. E. L. Fisk believes is much too low. More than 11 per cent of those rejected had heart trouble and about 9 per cent had tuberculosis. The rejection rate for the first draft was 33 per cent and for the whole number in all drafts is estimated by the Surgeon General to have been 28 per cent. In Great Britain of 2,425,184 men who were examined in 1917 and 1918, only 36 per cent were graded as physically fit, 22 to 23 per cent.—(Continued on page 648.)

The One Best Way for Executives*

Self Command Means Automatic Response. Skill Means Repetitive Effort Reduced to Automaticity. Both Are Explainable in Terms of Habit Formation and May Be Readily Acquired

Dr. FRANK B. GILBRETH, CONSULTING ENGINEER, MONTCLAIR, N. J.

YOUR preliminary studies in the principles of administration are now completed. You have been studying the best theory and practice in your line of activity and are now ready to return to industry to apply what you have learned. You will find that the average practice of executives is far below the best that is already known and proved. Your practice as executives is expected to excel the best extant.

You are expected to give the world the benefit of the great opportunity that you have had. You are expected to function as the liaison officers between the most advanced school of economics, and the financial, commercial, and industrial world. You must be the makers and bearers of standards. Standards of thought and methods of analyzing facts and conditions for best results.

Having had exceptional privileges and opportunities, you are expected—you are duty bound—as a matter of patriotism, religion, and social service to spread the knowledge and methods of *measuring for action*, that their benefits may reach and help, to the largest extent possible, everyone with whom you come in contact and everyone whose destinies you can in any way affect or control. You are entitled to personal prosperity only in accordance with the extra prosperity that you are able to produce for your fellow men, and your durable satisfactions of life will be accumulated and enjoyed by you accordingly.

You are expected to help teach the differences between evidence and testimony as to the proofs of the "One Best Way" to do work, in order that actual measurements of the facts and actions of the past and present may be the prerequisites for judging trends and reactions and probable happenings of the future.

Your respect for the general practice of selecting the best units to measure, the best methods of measuring the units, and the use of devices that will make the most

prompt presentation of the facts, will create a new mental attitude toward and a more ready acceptance of the scientific method in commerce and industry.

You will live to see a revolution in the methods of executives. No such changes have ever been made in several generations as you will see in your generation. You will be called to guide the trend of the science of management and the happiness and prosperity of all classes from the educated to the ignorant, the skilled to the unskilled, the genius to the moron.

While you will find in many instances a marvelous application of genius to industry, close examination will everywhere reveal surprising inequalities of merit and efficiency. You will find as a direct result of such unevenness the most pathetic or ridiculous situations, for almost everywhere there is to be seen a careful and painstaking effort to perpetuate the practices and conditions that have long been acknowledged as obsolete.

For there are relatively very few who realize that high wages and low unit costs can be obtained simultaneously if employers and employees cooperate heartily in the time and energy saving methods standardized in the "One Best Way" to do work, and of this few there are still fewer who combine with this knowledge the continuity of purpose which is necessary to achieve this mutually desired result.

Old Notions Persist

Trades can be taught in one-fifth to one-tenth of the time that is now generally required, but nevertheless, you will find that even now trade schools are proposing further prolongation of the periods of apprenticeship.

This will obtain as long as training is permitted to remain in the hands of journeymen. Without the slightest knowledge of motion study, with no use of scientific method either in practice of the trade or in apprenticeship training, and with the further disqualification that they have almost every personal incentive *not* to produce skilled apprentices who through youth

and greater strenuousness will surely supplant the older man unless by mutual agreement all limit their possible output, it is natural that no records can be shown of trades holding before ambitious youths the methods which in their periods of leisure or during times of unavoidable inactivity they may employ to further their skill and shorten their periods of apprenticeship. The consultant of the apprenticed youth and the last word of authority for him is the biased and ignorant journeyman to whom he has been assigned as pupil.

No two workers and no two teachers of workers in offices or factory, on the farm or in the school, do their work in the same way. Study will reveal quicker, more economical, better methods in the best representative of each group. In each respective group, therefore, all may be counted wrong but one.

You will find that only a very small percentage of people realize the astounding economic waste resulting from the lack of a national and international effort to find and reward the representative of each group who can demonstrate the one best way to do work and all of the components that go to make up this one best way to accomplish a given result in trade or office work. The fact that relative skill in all kinds of repetitive endeavor can be so reduced is the basis for establishing the *best extant* for use as a base line from which to adapt and improve for better adaptation to the different types of individuals and the other conditioning factors that affect the quality of a man's work, the great idea being that such basic standard of possible achievement enables the worker to study his own work and to eliminate motions that are useless and hence entail an unnecessary waste of time and effort and produce needless fatigue.

Many of the current methods for doing work are shockingly, unnecessarily bad, and this condition is not confined to the practices of the uneducated laboring class. Crude methods obtain in all trades and vocations. Even in the hospital operating room

*An address given at the graduation exercises at the Babson Institute, Wellesley Hills, Mass., June 18, 1923.

and in the practice of surgery, which of all vocations should be regarded as precision activities, so much waste motion occurs that almost any thoughtful person should be able to improve them materially. The same is more particularly true in large mercantile establishments, and in the great retail stores.

No two surgeons are equally direct and precise, no two use the same methods. Among the great department store executives there is disagreement on fundamentals in different stores. Even executives in the same concern will find themselves opposing one another both in principles and practice on matters that are the proper subjects of demonstration rather than argument. The general use of charts for the graphic presentation of facts and the indication of probable trends is appreciated in the offices of but a small percentage of American executives, though they are at present more appreciated here than in any other country.

Many great executives who are otherwise justly famous, are opposed to the use of charts. Some refuse to look at them as though it were a matter of creed or religion, and many who do use them know but vaguely what they mean.

You will find that of those executives who are enthusiastic for the use of charts, not more than a trivial percentage realize the importance of the prophecy and program lines of the chart as outlining objectives and graphically setting forth a plan to be understood and to be provided for, and serving as a basis of comparison with the performance that follows. It is essential that the prophecy and program curves shall not be limited merely to financial analyses and budgets, but that the same methods be applied also to marketing, sales, and production, all of which must be considered together, as well as separately.

You will find executives who will approve of extravagant expenses on many kinds of non-essentials, and at the same time will watch carefully the amount of paper used in the making of the charts, and insist that the data be so crowded, that paper is saved at the expense of information that is to be presented to the under-executives. Business and industry and the country at large will be forever indebted to Babson for the emphasis that he has placed on the value and use of charts for presenting correlations, conditions, trends, and prophecies.

These facts will call to your atten-

tion a few typical instances of the extraordinary conditions and opportunities that will confront you executives when you return to your chosen fields in merchandizing, industry, and in the professions. You know that the remedies for such conditions exist and that it is your duty to apply them.

I have purposely emphasized the foregoing facts, not because I am pessimistic, but to impress upon you the absolute necessity of using for improvement the best demonstrator of the best method obtainable as a definite first step in the process for finding the "One Best Way" for executives.

Shocking degrees of unnecessary wastes exist on all sides. Such books as Professor Spooner's "Wealth from Waste," a remarkable thought detonator, give detailed accounts of such wastes and information regarding their elimination. One should also keep in touch with the work of waste elimination of the Federated American Engineering Societies, under the eminent leadership of L. W. Wallace.

You will find that a large proportion of executives, whose functions would seem to indicate that they know better than almost all of the rest of the people, have but slight concern regarding waste elimination except in materials. They will, perhaps, all agree that the waste from the kitchen should be fed to the hens, but there are still many who know nothing of the dependent sequence of savings accruing from the elimination of excess variety and size in manufactured goods. They know nothing of the theory of preferred sizes for full lines with minimum inventory, and they will persist in the fallacy that standardization of variety, size, condition, and method, is the cause of monotony, and the feeling that any office or factory operating under superstandardized conditions for intensive output would be a sort of a part-time jail.

You will find that many of our best magazines are ever ready to open their columns to writers who are without actual personal experience, who will describe the monotony that accompanies working under standardized conditions, a monotony which, as a matter of fact, affects only a worker who is capable of handling a grade of work above the type at which he is working.

You are supposed to disseminate information to counteract such illogical influences and conditions. You are supposed to know that there are all types of bodies and minds, and that there are many people who prefer to fill the jobs ordinarily considered to

be monotonous, and comparatively few who desire to take the responsibility that accompanies the jobs that require planning before performance or new decisions constantly during performance.

Instead of stressing the monotony of the worker who has no particular preference as to the kind of work, there should be much more emphasis on the subject of having each and every person occupy the highest position that he is able to occupy, and all that goes with scientific preparation, fitting and placement. *There is no problem of monotony when one works at the highest type of work for which he is fitted.*

You will find it the exception instead of the rule to paint all work rooms as white as possible. You will find a general belief that light reflected from white paint is too strong for the eyes, yet it can never equal the brightness of outdoors.

Executives everywhere generalize and decide with too little data on the subject under consideration, and the percentage of organizations that have mnemonically classified their information and data, and have filed them so that they are instantly available, is very small.

You will find many concerns, who, with the honesty of ignorance, will agree upon time study rates which they "will never cut unless the method is changed," and who will then entirely omit the recording of the method which is timed. You will find that the general practice is to guess instead of to measure.

You will find a pathetic condition regarding theories and practices of promotion to higher positions in the industries. You will find that relative merit and efficiency are seldom properly evaluated, due to the absence of individual records of performance. You will find better individual records of daily efficiency of cows on a dairy farm than you will find of workers in many organizations too large for the personal touch. You will find comparatively few instances where the individual's progress and promotion are planned, and where the skill of the expert is in transferable form for the use of the faithful and the ambitious. You will find few instances where the efficient can be sure that their utmost efforts will be recognized.

There are few organizations where teaching and fitting ones fellows is made an incentive resulting in benefit to all, yet this is comparatively easy of accomplishment. This is no mere theory. The three-position plan of promotion has been in operation

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Editorials

THE first problem of the health officer is to develop a sound plan of progressive development in the light of local conditions and local needs. His second problem is to obtain the funds

necessary for putting such a plan into execution; and at this point the problems of personality again prove of supreme importance.

To Secure Health Appropriations

Experience shows that the popular support necessary for securing adequate health appropriations is latent in every community and that where the situation is properly presented it is a rare politician who can not be made to appreciate that the support of sound public health work is the best sort of practical politics. Yet appropriations in most communities are still woefully inadequate.¹ The health officer has something which every community needs, the possibility of saving life and promoting health through the application of the modern science of hygiene and sanitation; but he must be an effective salesman as well as a sound administrator if he is to persuade the city fathers to purchase what he has to sell.

The health officer who appears before his budget committee must first of all have his facts in order. He must know just what has been spent and how, and why, and he must know the exact purpose of every dollar of new money which is asked for. He must answer all questions frankly and fully and in such fashion as to convince the appropriating authorities that he is businesslike and economical. He must present the results attained and above all the possible achievements of the future in a form so clear and effective as to make it obvious that it is not some remote piece of scientific work which is at stake but the saving of lives of men, women and children. He must not seem to dictate and he must not seem to be asking for something for himself and his staff. Dictation and personal appeal alike produce psychological reactions which only serve to draw the purse-strings tighter. The most successful health officer at a budget hearing is the man who presents his case so convincingly and yet so objectively that when he has finished the appropriating authorities feel that he has laid before them an opportunity and not asked them for a subsidy.

¹ See article by H. H. Moore, Public Economy and Public Health, The Nation's Health, v. 343.

THE movement now on foot for the organization of a national society to sponsor the campaign against heart disease testifies to the progress of one of the most significant of the newer currents in the stream of public health. The Association for the Prevention and Relief of Heart Disease of New York City, established in 1915, has performed

Campaign vs. Heart Disease

a truly notable service. Forty-three out-patient cardiac clinics are now in operation in New York City with a registered attendance of about six thousand patients. Seven to eight hundred affected children have been cared for this summer in fresh air homes and three hundreds beds in various institutions have been made available for convalescent cardiac cases in need of institutional care. Sixty-one out-patient clinics for cardiac cases are now in operation in twenty-three other cities; but it is more than time that this admirable work should be extended with greater rapidity and made more truly national in scope.

To the layman there is something final about the verdict "heart disease"; as there was about the word "tuberculosis" fifty years ago. Yet in a very large proportion of cases such a feeling is altogether unwarranted. There are three broadly distinguished types of heart lesions, as pointed out in recent enlightening addresses by Dr. Lewis A. Conner, which coincides with three different age periods of life. In childhood heart disease is generally due to focal infections of various types, frequently associated with rheumatic symptoms; in middle life it is typically a sequel to syphilis; in later years it is most often a symptom of those degenerative changes which old age brings about in the arterio-renal complex.

The control of true degenerative cardiac disease is still limited chiefly to palliative measures and must so remain until a deeper knowledge of biochemistry reveals something more of the true nature of senile degeneration. The heart disease of middle life is however clearly within our power although the attack must be made primarily upon syphilis itself, at a time long antecedent to the actual incidence of cardiac symptoms. Every step which is taken to further the early diagnosis and the prompt treatment of syphilis will contribute just so much to the reduction of heart disease in the forties and fifties.

It is above all, the cardiac disease of children which offers a supreme opportunity for intelligent and organized control. If the focus of infection can be discovered and removed, by attention to teeth or tonsils for example, the secondary lesions

which have been produced will not only cease to progress but will tend to disappear. Like every other organ of the body, the heart is subject to the sway of the *vis medicatrix naturae*. It is here that results of major importance may be achieved and the development of social machinery adapted to this end offers substantial opportunities to the health worker of tomorrow.

THE many-sided social-hygiene program is being rapidly integrated into the general social welfare scheme of the United States as was well illustrated by the program of the National Conference of Social Work in Washington, last spring. The conferees—both those who prepared papers and those who discussed them—showed their complete

Tendencies in Social Hygiene

sympathy with the proposition that education for normal family life is an essential foundation stone for our whole social structure. Conversely they indicated a well founded understanding of the dangers arising out of familial maladjustments, so many of which are due to a failure of the marital partners adequately to solve their sex problems.

Less emphasis in the conference program was placed on the field of venereal disease control, mainly because this activity, to a large extent, has now attained its logical place in the work of national, state, and local official health agencies. The stressing of other phases of social hygiene was in itself a tribute to the progress already made in fighting syphilis and gonorrhea. It indicated a realization of the noteworthy advance made during the past ten years in the medical—and, to a lesser degree, social treatment of these diseases. The increase of from two hundred to 850 in public clinics throughout the country, and the fact that in addition to the Division of Venereal Diseases of the U. S. Public Health Service, virtually every state has an official bureau or division to combat these plagues within its own boundaries, are matters of almost common knowledge.

The increase in free laboratory facilities for carrying out the tests so essential as aids in scientific diagnosis and treatment, and the increase in the reporting by physicians of cases of syphilis and gonorrhea are also great. It is interesting to note in this connection that recent monthly letters sent out by Dr. Joseph Lawrence, director, Division of Venereal Diseases, New York State Department of Health, show more cases of syphilis being reported than of tuberculosis.

That the medical profession has gone farther with its portion of the social-hygiene problem than have the church, the school, and the home was shown by accounts of the lack of technique, training, and purposeful effort in the personnel of these three latter groups. It is to them, largely, that the future looks for preventive—rather than remedial, social hygiene.

The salvaging processes now being carried on in reformatories, industrial homes, hospitals, and clinics, will be necessary, probably, for many years to come, but constructive sex instruction should reduce this necessity, steadily and surely. When our clergy, teachers, and parents learn to evaluate in true terms the importance of accurate, wholesome, sympathetic counsel to youth from child- to manhood, they will so apply their knowledge as to lessen greatly the burdens of persons and institutions now dealing with the varied manifestations of sex delinquency.

VOLUMETRICALLY speaking, industrial medicine has made a remarkable record during the last decade. The establishment of new medical departments and the expansion of old

Opportunity of Industrial Physician

ones in industrial organizations has been a continuous performance. Qualitatively there have also been advances. But the excellence of industrial medical work has

not kept pace with the increase in its volume.

Not that industrial medical work is not good, has not grown better, or is not getting better all the time. It is. And many men of fine abilities are giving to it the best that is in them. It has also produced some studies and investigations properly classed as scientific research. Yet in too many instances it has concerned itself with the day's work only and there has been piled on the doctor such a burden of routine that he has had no time or energy left to carry his observations beyond the patient in hand.

The particular weakness arising out of this condition is in the field of industrial hygiene. Patients are well treated. Conditions and processes are often neglected. Preventive medicine is not studied at its sources. Light, air, and epidemiology are too often unknown quantities to industrial physicians. Safety departments have gone ahead of medical departments in this regard. They have applied the analytical method to the study of accidents and have gradually eliminated hazards that are not apparent on the face of things.

The industrial physician needs to learn that he is a hygienist as well as a surgeon. It would be more accurate to say that he must become a hygienist as well as a surgeon, for with only rare exceptions his training and interests are confined to the latter field. But in order to do this he needs more than the conviction that the field of hygiene belongs to him, is relatively untitled in American industry, and will yield a good return for the labor spent on it. Like our best physicians he needs better training in hygiene, beginning with the medical school. And he must have the support of industrial management, financially and in other ways, for the collection and analysis of data and for the application of the treatment he finds to be needed.

The general debility of the industrial hygiene movement will not be cured without the prolonged administration of this two-ingredient stimulant.

THE past two years have been banner years in the history of public health and have resulted in enormous strides in health education as well as in health preservation. Never before has

Golden Rule in Health Work

the positive health idea occupied such a prominent position in the minds of the mass of the people. In order to retain this interest and confidence, it behooves

health workers everywhere to exert their best efforts in the promotion of health and happiness, remembering that much depends upon their own enthusiasm and thoughtfulness.

In this connection it seems pertinent to sound a note of caution against the tendency on the part of a few health workers, particularly some of those engaged in routine clinic activities, to forget that they are dealing with human beings, possessed of sensitive psychological constitutions. During the emergency of war there may have been some reason for uncompromising orders or even occasional harsh words, but such exhibitions have no place in the properly functioning public health campaign. Routine clinic work is of course trying on the patience of the personnel in charge, but it is important to bear in mind that the value of the clinic as a public health educational center may be largely lost by neglecting the elementary virtues of tact and consideration.

A little girl came to a dental clinic a few days ago in company with a group of other children from her room at school. An older girl in charge of the group observed that the child was unusually nervous over the situation and suggested to the

dentist that she be examined first. But instead, the child was pushed aside until the very last to punish her for attempting to interfere with clinic routine; and in the end a slightly decayed tooth was hastily extracted without a pretense of examination to ascertain if it might have been saved. The child had come to the clinic with the usual permission from her parents for such treatment as she needed for the father and mother had confidence in the school authorities.

In place of establishing a health consciousness in the minds of children who will in turn pass on the message to the family at home, such treatment as that described above naturally embitters the children and parents and all with whom they come in contact, and a golden opportunity is lost simply through the neglect of an unsympathetic practitioner. Cases similar to this occur only too frequently in practice. It is very difficult in routine clinic, hospital, or sanatorium practice to smile continually in the presence of frequent annoyance. It is, however, worth while to remember that a kindly and patient attitude toward the patient will pay big dividends in health promotion.

TWO contributions of very real significance have recently been made to our knowledge of the reaction of the human body to atmospheric temperature and humidity.

Temperature and Humidity

On this side of the water, Houghten and Yagloglou¹ conducted a careful study of the effect of various combinations of atmospheric temperature and humidity on comfort and on the physiological reactions of the body, at the Research Laboratory of the United States Bureau of Mines, the United States Public Health Service, and the American Society of Heating and Ventilating Engineers at Pittsburgh. The results obtained seems to clear up a much disputed question as to the relative significance of wet and dry bulb temperature in determining comfort and show that at 32 degrees F., the comfort line coincides with the dry bulb temperature, at 62 degrees. It depends equally on the wet and dry bulb temperatures and at about 132 degrees the wet bulb temperature is the determining factor. As demonstrated by the New York State Commission on Ventilation and other workers body temperature and pulse rate are markedly affected by increasing air temperature.

In another communication from the same laboratory, McConnell and Houghten² report in

greater detail on the effects of more extreme atmospheric conditions, treatment being prolonged until the subjects were so markedly affected as to make a longer stay in the experimental chamber dangerous. Restlessness, irritability, headache, and palpitation of the heart, soreness of the eyes, weight on the chest, dizziness, confusion were the chief symptoms; and weakness and a dragged out feeling continued for some time after the experiment had closed. The extreme dry bulb temperature which could be endured was 157 degrees (wet bulb temperature 100 degrees, relative humidity 15 per cent) for forty-five minutes, while the extreme wet bulb temperature was 112½ degrees (100 per cent relative humidity) for thirty-five minutes. The pulse rate seemed to be the best measure of discomfort, 135 beats per minute being markedly uncomfortable and conditions becoming almost unbearable when the pulse exceeded 150 beats. Blood pressure results were somewhat variable but under the most extreme conditions the diastolic pressure fell and the systolic pressure rose. No changes in respiratory rate were observed.

From England we have a somewhat similar study by Vernon³ which indicates similar results so far as body temperature and pulse are concerned but which coincides with the work of the New York State Commission on Ventilation in indicating a somewhat delayed rise in rate of respiration. The particularly significant feature in these studies is the demonstration that under moderate degrees of overheating there is a tendency to reach a condition of equilibrium which the author attributes to the increased evaporation from the wet clothing. Particularly important is the demonstration of the importance of acclimatization, the endurable limit of wet bulb temperature being increased from 82½ degrees F. wet bulb to 88½ degrees F. wet bulb in the period of a month during which the experiments were conducted. Acclimatization was most effective in relation to humidity and manifested itself in greater power of endurance in a lessened increase in pulse rate and a lessened increase in respiration. Dr. Vernon believes that a specific influence is exerted by humidity per se irrespective of wet bulb temperature though in this respect his studies are perhaps less exhaustive than those of Houghten and Yagloglou. As might be expected he shows that the kata-thermometer is not a very close index of comfort when clothing is worn.

1. Houghten, F. C. and Yagloglou, C. P. Determining Equal Comfort Lines. *Journal of the American Society of Heating and Ventilating Engineers*, Vol. 29, pp. 165-176, March, 1923.

2. McConnell, W. J. and Houghten, F. C. Some Physiological Reactions to High Temperatures and Humidities. *Journal of the American Society of Heating and Ventilating Engineers*, Vol. 29, pp. 131-163, March, 1923.

3. Vernon, H. M. The Index of Comfort at High Atmospheric Temperatures. *Medical Research Council, Special Report Series*, No. 73, London, 1923.

KANSAS CITY'S WEST SIDE DAY NURSERY



Welfare work for the child under five is quite as often welfare work for the mother as well. Tucked in between two tall buildings in a downtown district of Kansas City, the sand pile of the West Side Day Nursery gives the children of working mothers a chance to play freely and develop naturally in an atmosphere impossible in a city street or in a home where the mother is absent at her day's work. The gymnasium of the Downtown Branch of the First Baptist church serves the children as a play room. Ten cents a day pays for a day's care for two warm meals. Thus the nursery safeguards the critical pre-school period of the child's life.

The Fourth Man

BY WILLIAM COLBY RUCKER, WASHINGTON.

IT WAS a gorgeous day. The woods were marching beneath the flaming banners of autumn and little tufts of fleecy clouds moved slowly in a sky which seemed to sparkle with the first crispness of September. The course was crowded. Many players were waiting to take their markers out of the rack and drive down the velvety fairway which fell from the tee in a succession of green terraces broken by a wicked bunker and sand-trap maliciously placed to ensnare the unwary.

One foursome drew aside from the crowd and stood leaning on their drivers waiting their turn, their caddies sprawling near the tee with the sacks of clubs.

"Too bad about Exton," said one, a short beetle-browed man of judicial mien.

"How's that, Judge," asked another with saintly face and silver hair.

"Lost his wife, Bishop."

"Dear, dear—dear, dear—how sad. She was a lovely girl—so sweet—from such a good family—and he such a jolly fellow—such a brilliant lawyer and so popular. Dear, dear—dear, dear," clucked the Bishop.

"Died in the hospital this morning. Operation, I believe—poor Exton. Have know him well ever since he was admitted to practice—too bad. Such a generous chap—great mixer. A bit wild perhaps, very public spirited though. Always in everything—good speaker—banquets and all that sort of thing. Awfully sorry for him. Hard luck coming right now just as we were expecting to run him for Congress," and the Judge sighed.

"I knew him awfully well," said a big blond giant of a man. "We were in college together, same fraternity in fact, and while he was a little apt to stray off the straight and narrow, he had a heart of gold and a brilliant mind. Too generous a man though, always gave away everything he had. This surely will be a terrible blow to him."

"Yes—yes," said the Bishop. "It seems to me, I heard something about

him being in the hospital about a year ago. Not too strong himself, I fear, and now to lose that beautiful sweet wife, how sad—how sad," and the Bishop stepped back and made a practice stroke at an empty match box.

"Oh, well, I wouldn't worry too much about his health, Bishop," said the blond man with a wink. "Everybody—that is, um—all of us worldly men—have our little indiscretions, otherwise what would there be for you good men to do?"

"Indiscretions! Poor Exton! Poor

threw out the blond. "Mrs. Exton died in the hospital following an operation for some female complaint—"

"Sure she did," broke in the fourth man. "Where'd she get that female complaint? I'll tell you. From that high-roller, glad-handing husband of hers. That's where she got it. I know what he had when he was in the hospital a year ago. His wife thought he'd hurt his back in a motor-boat and when he didn't get well promptly, they told her he had some kidney

trouble. Kidney trouble, hell! He'd picked up something no decent man should have, knocking around with a bunch of half-soused lodge brothers. Of course he took it home. Of course he infected his wife and he killed her just as surely as if he'd fed her arsenic or bashed in her head with an axe. Murder, that's what it is!"

"Oh my—oh my!" and the Bishop twisted his driver nervously.

"But my dear fellow," said the Judge tensely. "It was not intentional. There was no premeditation. No motive could be shown. We all know his great affection for his wife and—"

"Affection, hell!" snorted the fourth man. "If that's affection give me hate. Affection, huh! Any man who associates even once in a while with a lot of common trollops is a potential

murderer. Perhaps it's his wife he's going to kill—perhaps it's his children—perhaps it's himself—it doesn't matter which—but potentially he's going to kill somebody. When an intelligent, educated man deliberately, drunk or sober, goes down the line, he knows—or at least he should know—that he's starting out to kill somebody. That's premeditation, to take life, and if his wife or child dies as the result, it's murder just—"

"But my dear man, you don't understand the legal questions involved," interrupted the Judge. "Granted the premise, it couldn't be anything more than an accident—criminal negligence if you will—hardly manslaughter, certainly not murder. You see—"

Healthologues in Fiction

THE parable has long been recognized as a valuable educational method.

It not only attracts the mind, it is a subtle means of making a lasting mental impression.

Many a good lesson has been taught by fiction that never could have been inculcated by tracts, and much health propaganda has been thrown away unread by laymen who would read with avidity a fiction in which the same facts are skillfully concealed. This will be the case so long as it is necessary to sugar-coat pills. The story herewith is an excellent example of the virtues of slantwise suggestion instead of a frontal attack.

hell!" burst out the fourth man. "I've had my eye on that brilliant mixer and semi-rounder ever since he went to preparatory school with my boy. I've always liked him—couldn't help it—he had a wonderful charm—and I admit his intellectuality and ability and all of that. But he had a bad streak. No, I don't mean just that. I mean a weak streak—vanity perhaps—the vanity that comes from good looks and charm and brilliancy and doing easily what others have to sweat blood over. But damn him, if he was my son-in-law, I'd kill him for a common murderer!"

"Oh dear—oh dear—how dreadful!" groaned the Bishop.

"What do you mean murderer?"

"See, hell Judge! The woman's dead isn't she? See, huh! When every school and college in the country is teaching all about these things, do you suppose anybody but a congenital idiot doesn't know what he's going up against when he picks up some cabaret huzzy? If I went out in my automobile and drove on the wrong side of the road and killed somebody you'd send me up for manslaughter wouldn't you? Do you mean to tell me that a man who puts himself in the way of getting a dangerous disease and then gives it to his wife doesn't deserve hanging? You give me a pain! Exton was a good looking and a free spender and full of fun, but he was a rotter and you're making excuses for his conduct. Do you know why? Because every darn one of us—except you Bishop of course—has been down the same road some time in our lives and we're afraid to look our souls in the eye and admit how criminally we've acted at some time or other and how dreadful the consequences might have been. Maybe there have been consequences but we've managed to keep 'em secret."

"Dear—dear," exclaimed the Bishop in a voice of pain. "That can't be true. You're all communicants. You've reared your families well. You're model husbands and fathers. It can't be true that even in the irresponsible days of your youth you've done such things. I can't believe it. I won't believe it!" Pathetically his eyes questioned each of them.

The blond man blushed and stirred the turf with his cleated shoe. The Judge cleared his throat. The fourth man looked at the other three defiantly.

"Well—er—you see," mumbled the blond man. "Youth—um—artificial restrictions of society—physical urge—um—little wild oats necessary—um, um—"

"Need we enter upon these irrelevancies?" pompously began the Judge.

"Oh, come clean fellows—come clean," thrust in the fourth man. "Let's get our souls laundered right here and now. We aren't sitting in judgment to one another. We aren't bragging about our youthful foibles. We aren't telling the world. We're a bunch of middle-aged, fairly successful, reasonably decent men. Nature left all that foolishness behind us long ago. We started by pitying a fellow who has lost his wife and we've gotten to the point where we're trying to fix the responsibility for her death. I say her husband killed her. The judge says it isn't murder but is almost willing to admit manslaughter

through criminal negligence but—"

"Just a minute please," cut in the Bishop crisply. All his hesitancy had gone. His dear old face shone like an angel's, a kindly angel talking to wayward children.

"Tell me gentlemen—as your spiritual leader, I have a right to know—I must know. Did you do what the fourth man implied you did? Did you ever go to these horrible places? Did you ever consort with these—ah—unfortunate women? Tell me."

The blond man's red turned brick. The fourth man grinned maliciously.

"Tell me," urged the Bishop.

The Judge swung a chalky face on the fourth man. "Damn your meddling tongue. I wouldn't have had this happen for the world. I'll never be at peace again!"

The Bishop laid a gentle, blue-veined hand on his shoulder. "Confession is the road to peace, my son. Tell me," he begged.

With a jerk, the blond man brought up his big blue eyes brimming with unheeded tears. "I did," said he, "twice—and I can't tell you how frightened I was afterwards. The last time was just before we knew our little boy was coming and I nearly died for fear he would be blind. The months of tormenting suspense cured me. He died when he was six. I've always blamed myself but our doctor said that never had nothing to do with it." He choked.

"I've strayed too," said the fourth man grimly, "and it wasn't until my boy went away to school that it came home to me. Thought the wife wasn't wise to me—fancied myself rather clever. Just before Dick left, she looked me straight in the eye. 'Do you think he's going to be as big a fool about women as you are?' she said levelly. I caved right in and I've kept straight ever since and thank God, my boy's as clean as a hound's tooth."

The Bishop's hand still rested on the Judge's shoulder. He shook it off as though it burned him and turned his ashy face upon the others. "I've lost my wife," said he.

The fourth man gazed thoughtfully down the fairway broken by a wicked bunker and sandtrap maliciously placed to ensnare the unwary. "It's not so hard, if you keep straight down the course," he said to himself.

The United Hospital Fund of New York City announces that it costs the city \$54,000,000 a year to be sick, and that 180,000 persons on an average are on the sick list each day.

Protective Value of Coloring Poisonous Drugs

The General Medical Council (England) has been invited to express an opinion on the suggestion that strychnin in future should contain "brilliant green" to an extent that would render it readily recognizable, and the further proposition that distinctive coloring matter should be added to such commercial products as sheep-dip and weed-killers, with the same object of preventing danger to human life through negligence or criminal intent. Commenting on the subject, *Public Health* gives the following expression from the Council:

It would, no doubt, be desirable in the interest of the patient or dispenser that drugs dangerous to life in excessive quantities, and used in compounding medicines, should be so distinguished that accidental failure to recognize them would become impossible. Such accidents are, however, not common, and a patient might be alarmed at the appearance of a medicine containing a perfectly proper ingredient. In the case of sheep-dips, weed-killers, poisons for vermin, and other substances in common use, criminal trials have shown that poisons such as arsenic can be used with fatal effect, and that their detection may only take place with difficulty when the death of a person poisoned has for some reason excited suspicion. Such suspicion, however, may not arise until it is too late to obtain proof as to how the poison came to be taken, and the form under which it was obtained. How many cases may escape detection altogether is not known. A very vivid and distinctive coloring might deter a poisoner or warn his victim, if it were undisguisable even in minute quantities and highly diluted. It would also, of course, assist in the detection of the cause of death. Whether it would tend to advertise the poison and its efficacy to persons desirous of using it for the purpose of suicide, or to would-be poisoners, who might trust to being able to disguise it, is a question which no doubt will receive consideration."

Pennsylvania Outlay for Relief Measures

The funds devoted in Pennsylvania to measures of relief are made up of: State expense \$24,914,897; county funds, \$12,503,297; and private charity, \$9,552,663. This money is spent as follows: 3.1 per cent for the prevention of tuberculosis; 15 per cent on work for children; 18 per cent for the care of acute illnesses; 26.3 per cent for outdoor relief and workmen's compensation; 39.6 per cent for insane, feeble-minded, almshouses, jails, penitentiaries, and homes for the aged; and .1 of 1 per cent for activities of the Department of Public Welfare.

Salt Lake City's New Municipal Bath House

CHAMBERS of Commerce all over America are more and more taking an active part in public health. This happy condition has been brought about by leaders in the public health field, who have demonstrated to the Chamber of Commerce secretary that the health of a community and the healthfulness of the community's surroundings are the best assets any town can have.

A public health program, perhaps more than any other civic activity, must adapt itself strictly to the community's needs and conform to the requirements of tomorrow.

Within the past few months Salt Lake City has just completed its new municipal bath house at a cost of \$350,000 and the Chamber of Commerce of Salt Lake City takes a great pride in broadcasting the information about these municipal baths, not only because of the fact that they are among the finest and most modern in the country, but also because this community asset has always been owned by the people of the city and the new facilities are utilized to better advantage.

The new bath house is 109 feet deep and 212 feet wide. It faces west, overlooking Great Salt Lake and commands a view of the various islands there in the lake and the mountains beyond.

The largest pool is fifty feet by 120 feet, finished in white tile throughout and this, with the eight private pools of various sizes can accommodate two thousand bathers at the same time.

The architecture of the building is Spanish Renaissance. It has beautifully shaped windows and the finish is a rich cream with red terra cotta trimmings.

The early history of Warm Springs, as the springs are called, is found in an old L. D. S. Church encyclopedia which says:

Of the variety of warm springs in Utah, the most noted and best known are the Warm Springs within the corporate limits of Salt Lake City. The

waters are limpid and smell strongly of sulphurated hydrogen and are charged with gas as combined with a mineral basis and as absorbed by the waters themselves. Dr. Gale is authority for the assertion that it is a harrowgate water abounding in sulphur. Three fluid ounces of water on evaporation to entire dryness in a platina capsule will give eight and one-fourth grains of solid saline matter. It is slightly charged with hydro-sulphuric acid gas and is a pleasant saline mineral water, having the valuable properties belonging to saline sulphur springs. It issues from the mountain side in large volume at a

the property. Under his supervision a flourishing business was done at the springs during the following ten years. In 1876 the property was leased to Dr. Monroe, who, however, failed to comply with his contract with the city council, in consequence of which James Townsend became the lease holder and had charge until his death, April 2, 1866.

The new bath house was constructed under the supervision of the City Commission, with Commissioner Herman H. Green, head of the Department of Public Affairs and Finance in direct charge. The bathing and other facilities, are described as follows:

One large pool 50 feet by 120 feet—for the use of the general public.

One medium pool, called the Private Pool, size 20 feet by 50 feet—to be used for private parties or otherwise as the management deems proper.

Seven small pools, size of each 8 feet by 11 feet, these to be for individual use.

There are twenty-six shower baths scattered throughout the building; thirteen of these are in connection with the large pool, four for the medium pool, seven for the individual pools (one to each pool), one

for the masseur's room and one for the masseuse's room. These are mainly for use in cooling off after a bath in the pool; most of them are supplied with cold fresh water only, although at least one shower in every shower room will be supplied with both hot and cold water.

Adjoining the main pool on the main floor at the south end is a large locker and dressing room for men, fitted up with dressing booths and lockers; in the basement directly below is a room of the same size for boys, similarly equipped; and on the second floor directly above, is a third similar room for women equipped with individual dressing booths.

These locker and dressing rooms are directly accessible to the main pool. Being on the south end of the building, they are also adja-



The bath house has a frontage of 212 feet, facing west, and overlooking Great Salt Lake. The building is of Spanish Renaissance in style, and is finished in a rich cream with terra cotta trimmings.

point about one quarter of a mile north of the Warm Springs Bath House.

It has a temperature of 95 to 104 degrees and is conveyed in wooden pipes into three bathing houses containing plunges, shower, and tub baths and dressing and waiting rooms. The water is very efficacious in the cure of many diseases, notably paralytic rheumatism and scrofula. The bathhouses are situated in the Nineteenth Ward on South West Street between Eighth and Ninth North Streets. The property is owned by the city with which it is connected by street cars. The Warm Springs bath house was first opened November 27th, 1850, on the block lying immediately south of the present bath house. It was under the care of James Hendrix. Subsequently J. C. Little opened a hotel on the premises and did considerable business. In 1866 the present bath house was built under the direction of the Great Salt Lake City Council and Henry Arnold was appointed superintendent of



The large pool, for the use of the general public, is fifty feet wide by 120 feet long. Twenty-six shower baths are distributed throughout the building, thirteen of them in connection with the large pool.

cent to the outdoor pool and are intended likewise to serve those who frequent that pool; side entrances have been provided for such purposes.

Adjoining the medium or so called private pools are two other larger locker and dressing rooms—one on the main floor for men and the other above, for women. Steam rooms are also provided adjacent to the showers and pools.

On the main floor close to the men's large locker and dressing rooms, quarters are provided for a barber shop and masseur with Turkish baths and special physical exercise room in connection. On the floor above convenient to the ladies' locker and dressing room are located a beauty parlor and quarters for a masseuse.

The bathhouse is heated by steam from its own plant located in a boiler room to the rear. The plant includes three steam boilers, any two of which are of capacity to take care of the most extreme needs; the extra boiler will be in reserve for any emergency or for winter weather. It will probably be necessary to operate only one boiler.

Two exhaust fans are required for ventilation of the inner rooms adjoining the pools; but the pool rooms themselves are ventilated through roof ventilators which will take away the excessive vapor constantly arising from the water.

On the interior, tile is used quite extensively—this material being sanitary, beautiful, and capable of resisting the action of the water; all shower rooms, steam rooms, pool promenades and walls of the pools themselves are white tile. Ornamen-

tal, richly colored plans received in the prize contest for tile with a small amount of marble is used also for the floors and trim in the main entrance vestibule and lobby.

The opportunities afforded by this new bathhouse are exceptionally good and every day a great many children and grown-ups frequent the invigorating waters of the new municipal bath house and while the building and

American Hospital Association in Annual Conference

The discussions which take place during the conference of the American Hospital Association have long formed one of our best indices of hos-



One of the small private bathing pools in Salt Lake City's bath house which is available for private parties or otherwise as the management deems proper.

pital trends. The fact that 129 persons are on the tentative program, each representing some vital interest and some pressing hospital problem to be brought up before various sections during the twenty-fifth annual meeting to be held in the Municipal auditorium, Milwaukee, October 29 to November 3, is evidence enough of the importance of the hospital of the present day as a social phenomenon.

The hospital plant will be demonstrated by an exhibit of plans of six hundred or more architects' designs, collected to facilitate study and comparison by the Hospital Library and Service Bureau. The fifty-one accepted

plans received in the prize contest for the best fifty-bed hospital will be exhibited by The Modern Hospital Publishing Company. The Wisconsin Tuberculosis Association will present selected types of sanatoriums.

The industrial exhibit will include a model hospital diet kitchen. Every detail has been worked out by expert committees so as to demonstrate the possibilities of maximum efficiency and service. Educational exhibits center chiefly around occupational therapy, while various committees and societies will demonstrate the social services of the hospital, and its responsibility in dispensary and out-patient service.

The scientific program is arranged for the convenience and interest of specialized workers into the following sections: (1) Hospital construction; (2) out-patient section; (3) administration section; (4) dietetics; (5) trustee section; (6) administration; (7) nursing; (8) social service; (9) small hospitals; and (10) general sessions to cover such topics as are common problems to all hospital people.

Spirochete Infection of Rabbits

Though the literature on spontaneous rabbit spirochetosis is not yet extensive a recent contribution by Warthin, Buffington, and Wanstrom (*J. Infec. Dis.*, May 1923, 32, 5, p. 315) support the authors contention that "it is disconcerting to find that there is a spirochete infection of rabbits, apparently widespread throughout the world, caused by a spirochete that resembles pallida sufficiently closely to make possible the occurrence of mistaken identifications of one for the other, in the case of any worker who is not acquainted with the two organisms and their differential diagnosis. It is unfortunately true that the great mass of experimental work on the transmission of human syphilis to the rabbit has been carried out in ignorance of the spontaneous rabbit disease, and the value of that work now becomes legitimately doubtful."

Veneral Disease Information

The publication of venereal disease information by the U. S. Public Health Service for the benefit of health officers, physicians, nurses, and social workers engaged in venereal disease control activities, heretofore sent out as a mimeographed report, will henceforth be issued in printed pamphlet form. Under topical heads of special articles, research, diagnosis, treatment, clinical notes, and administrative notes, all current information on the subject is covered.

Monitor Ventilation for Two-Story Buildings Used in Massachusetts

No Attempt Is Made to Harness Air in the Canton Hospital School, But It Is Allowed to Rise, As It Is Inclined to Do

VENTILATION by a rather unusual method is employed in the Building of the Massachusetts Hospital School for Crippled Children. This institution, under the direction of Dr. F. E. Fish, is located at Canton, Mass.

Monitor ventilation is not unusual in one-story buildings but the Hospital School is probably the first instance in which it has been applied to buildings of two stories. As designed by Samuel W. Mead, architect, the structure is essentially one single story building placed above another. The roof of the monitor on the first story is extended in a horizontal plane to cover the area of the first floor; on this the second story is erected. Advocates of this type of construction and those that have inspected the Hospital School speak highly of the results accomplished.

The following account of the history of construction at the school and description of the present system of ventilating the two story building by monitors in the ceilings of the lower as well as upper story rooms, is supplied by Mr. Mead.

The Massachusetts Hospital School was created by legislative act in 1904 and the Trustees proceeded to plan an institution for the care and education of three hundred children and so create citizens to be self-supporting who otherwise might have become dependents. Suitable food and housing was the first requisite for such a program and the trustees determined that the housing must be planned in one-story buildings which could be ventilated with a monitor in the roof. The Hospital School was something new, there was no such institution in existence for observation and comparison, so the whole plant was a new creation. Two buildings for housing were planned, one story buildings of course, each containing two dormitories and two class rooms. The dormitories were real barracks, 24x62 feet with a sloping ceiling with low

hip roof and terminating in a monitor 10x50 feet for ventilation. The class rooms were 22x30 but architects and laws said they must be ventilated in the usual way by circulating pure warm air. So this rule was followed.

These buildings, when used, demonstrated that the air changes in the dormitories were ideal. The monitors at the ceiling let in fresh air and at the same time discharged the foul air noticeable at night in changing soiled beds, etc. The air in the dormitories was always fresh in contrast

fully considered and provided for.

In the new building I made the monitor roof of the east ward with an 18-inch eave and for the west ward I roofed the monitor with a flat roof which extended like a canopy over the whole area (20x30) of the ward. When these wards were occupied and used this west ward demonstrated itself more efficient in ventilation than other monitors, and the extreme overhang of roof was a suitable guard against conditions of storm. This west ward demonstrated

perfectly an ideal design for ceiling ventilation which could be duplicated in rooms placed one above another. Previous to the construction of this ward, monitor roof ventilation was unknown to buildings of more than a single story in height.

It has been found through experience at the Massachusetts Hospital School, in rooms constructed with sloping ceilings terminating in a monitor fitted with hinged windows, up or down air currents may be made and controlled.

In every case at this institution the heating is from direct steam radiation in the room. There are no air intakes. The fresh air comes in from open windows, leakage, or from the windward side of the monitor. The weather conditions govern entirely the ventilation and there is no rule of operation. Under no conditions of weather is it necessary to open the windows in the room, for ventilation can be controlled by operating the windows of the monitor.

Since the building of the original dormitories and the infirmary referred to, a cow barn, a two story cottage for boys, a two story cottage for girls and the New Bradford Infirmary, a handsome fireproof building, two stories high, accommodating one hundred bed patients, have been added to the plant.

All of these buildings are planned



Exterior view of part of the Massachusetts Hospital School, Canton, Mass., showing between the first and second stories the openings which connect with the monitors in the ceilings of the first floor rooms.

with the air in the class rooms which appeared fairly "dead." The class rooms had flat ceilings, and heat and vent ducts as required by the Massachusetts laws.

Ceiling Ventilation Perfect

The following year new buildings were planned, this time a small infirmary was necessary, and a building with two small wards was planned. These wards were planned 20x30 feet and followed closely the original dormitory model with sloping ceilings following a low hip roof and terminating in a monitor 9x18 with small windows opening out.

The only change of these monitors over the original dormitory monitors was to improve the eaves of the small monitor roof. Originally they were scant, the ventilation was right but protection against storm had not been

with monitor roof ventilation throughout, in large units and small units, to suit the housing, and in every case the ventilation is most acceptable.

The sloping ceilings start seven to eight feet above the floor line and



Monitor ventilation in a corridor of the Massachusetts Hospital School at Canton.

slope from the four walls to fit the roof line. The new Bradford Infirmary which has just been occupied, and found to be sufficiently deserving to bear the name of Dr. Edward H. Bradford, will prove to be the best development of monitor roof ventilation to be seen.

The first story of this building has a clear height of 13 feet. The ceiling slope starts 7½ feet from the floor and terminates at the monitor 10 feet from the floor. The second story clear height from the second floor to monitor ceiling equals the ridge height of the main roof of the building or 19 feet. In this story the ceiling slope starts 8 feet above the floor and terminates at the monitor 16 feet above the floor. The monitors are standardized to a 4-foot width for either story and the windows are all one light of glass 30 inches wide and 10 inches high, hinged at the bottom and swinging out.

It will be seen that these monitors are less than half the width of any of the earlier buildings, the windows are also only half as high, and these changes have proved that the air currents are more easily controlled; although the first story is 6 feet lower than the second story, the ventilation appears to be as efficient.

This novel idea of creating one story buildings in vertical association and so gain ceiling ventilation over and over again has been received by

professional men with a good deal of skepticism as to the architectural effect of the exterior, but I think the Bradford Infirmary has demonstrated that a fine looking building can be created under these conditions of design. Another building in Canton, Mass., with monitor roof ventilation is the Revere School a one story building of four school rooms planned in the form of a Greek Cross and monitors are planned much the same as in the Hospital School buildings.

There are several modern schools in Canton, but the Revere School is the latest building, so is the only one with a monitor roof. After some hearings at the State House on the subject of ventilation a state commission visited the schools at Canton to make comparative tests, with the result that the Revere School tested out as far superior to the others in every condition. In my practice of architecture I have been commissioned to plan many schools and churches in and about Boston all of which were necessarily designed with the common standards of ventilation operated by mechanical means, but since my experience covering ten years of study and planning the monitor roof system for the buildings at the Massachusetts Hospital School, I am convinced that cities and towns are wasting millions and millions of money in attempting to do with apparatus what can be accomplished in nature's own way.

Is it not obvious that a ceiling sloping from four sides to a hole in the roof will release the circulated air better than a hole near the floor at one side of the room? If my contention is right then it is true that enormous sums are being wasted, not only on apparatus, but on building construction and maintenance costs for schools.

Question of Air Intake

I have no doubt but that my monitor roof ventilation contention will be accepted in part by architects and engineers, but the question of air intake seems to be questionable with them, for generally speaking, the practice of emptying heated air into a room has seemed to be the right solution of heating for comfort. This has been the custom in luxurious homes from choice, and in public buildings to conform to building laws. My experience makes me believe that mathematical heating and ventilation is leading us astray, the fact is we are still animals instinctively directed to make the best choice. We prefer spring water to rain water for drink-

ing and a whiff of good outside air is a relief after sitting in a school or hall for an hour or so. When heating engineers can be led to forget about forcing air and plan to let nature take its course in an upward circulating system then the senses of school children will brighten, the doctors will have less frequent calls and the janitor in the basement will be free from care and be able to concentrate on the care of the building. To illustrate all this I shall refer again to the Bradford Infirmary at the Massachusetts Hospital School, for it is the best heated and ventilated building I know. It is a thoroughly modern hospital for every requirement of medicine and surgery and provides for the classification of one hundred bed patients, in four wards of 12 beds each, four wards of six beds each and the rest in private rooms, a few of which take two beds, and the heating and ventilation of this entire building cost less than



View of the type of monitor used in ventilating ward at the Massachusetts Hospital School at Canton.

ten thousand dollars. We should not try to harness air but be satisfied with intimate association with what air wants to do.

Chlorosis, a type of anemia once very prevalent among young women, is reported in Guy's Hospital Reports as fast disappearing both in Europe and America. The matter is of much more than merely medical interest because its control is attributed to the greater amount of exercise and fresh air enjoyed by women of today than in the past. The marked change for the better in the general health of women is definitely coincident with the first insistent demands for outdoor life and regular exercise for girls.

School Bazaar Interests Parents in Child Health*

*Diets in the Past Have Stupidly Played Tricks With Nature, But Now
Both Parents and Children Are Better Informed*

MOST professional health workers, particularly those who specialize in school work, recognize that one of the greatest difficulties is not getting the ideas over to the child, but rather how to reach the parent. Granting that some will come to us, in most cases Mahomet has to go to the mountain. How to do this, or in fact how to interest parents in school health work in a fashion which will be conducive to results is one of the questions on which our plans largely depend. For this reason I am presenting a report of two health projects undertaken in the DeValles School (named for Father DeValles, a well-known hero of the recent war whose death resulted from injuries in the service).

Early in the year, a Home and School Association was formed, with regular meetings, and a live set of officers. They cooperated to the utmost and consistently followed the suggestions of Mr. Louis Cook, a principal who has done unusual health work and who has been getting re-
sults thereby.

The second meeting was a Health Meeting and was for parents only. The program consisted of several suitable reels of moving pictures obtained from the State Department of Hygiene interspersed with a short talk by the school nurse, stressing the teeth and their care and by an illustrated talk by the Director of Health and Hygiene entitled A Child's Day, the discussion including diet and health habits. The attendance was good and considerable interest was aroused.

For the May meeting a more ambitious project was decided upon and

with which this article will deal chiefly. A health bazaar was planned consisting of exhibits of interest to parents, plus a health play in which the children would take part.

Every possible source of material was considered in order to make the exhibits as diversified and as valuable as possible and special thanks are due to the Eye-sight Conservation Council of America, the National Committee for the Prevention of Blindness, the Massachusetts Society for Mental Hygiene, and the Massachusetts De-

partment available for further investigation. Such parents as were interested were referred to a nutrition booth which will be described later. As decorations for this particular section a series of health alphabet posters, made by the children were used and others depicted the value of milk.

Next were three booths for selling simple candies at moderate prices, as well as articles made by the children, and finally five and ten cent grab packages.

Next to the grabs, a nurse was in charge of a scale where all might be weighed and measured without charge and tables were available for determining whether or not the figures were normal.

The nutrition booth occupied the corner of the room and was in charge of the health instructor in nutrition from the state department of hygiene. Here several rows of seats were placed and she was able to discuss the subject briefly with small interested groups of about twelve or fifteen, besides giving individual advice to parents who had been referred to her by the



David (in bed) is served by Eddie Egg, Mr. Milk, the Milk Girls (glasses in hand), Bacon, Butter, and Bread. Other clues completed the health message, and song, dance, and dramatic interest drive the lesson home.

partment of Hygiene for loan material.

The entertainment took place in the school hall which will seat about a thousand. The doors entering this were decorated with posters on nutrition and immediately upon entry the visitors came upon a booth in charge of the school nurse and an assistant who were prepared to weigh and measure any given child and if the child belonged in the nutrition group, they were ready, with accurate and fresh information to explain what measures were probably needed to bring the pupil back to normal. The findings of the school physician were given to interested parents, the cumulative health records being instantly

school nurse or who were especially interested. The Metropolitan Life Insurance Company furnished a supply of their cook books, child health alphabets, and other literature of great attractiveness and practical value and this was distributed in the school department by the supervisor of nurses, who assisted the nutrition worker.

The baby clinic which is held weekly in this particular school by the Board of Health provided an exhibit consisting of scales, baskets for use as cradles, and other practical articles.

There was in addition the school dental hygienist with her complete outfit who demonstrated her methods

*We are indebted for this material to Hugh Grant Rowell, M.D., then director of health and hygiene in New Bedford, Mass., schools. Dr. Rowell is now lecturer in physical education and assistant physician to Teachers College, Columbia University.

of cleaning teeth, in spite of the fact she had already handled twenty children that day. Showing the parents how such things are actually done is very conducive to a reduction of difficulty in securing permission for giving the child something of the utmost benefit.

On the third side of the room was a poster exhibit of the Massachusetts Society for Mental Hygiene, consisting of a rather remarkable series depicting essentially faults which a parent should guard against in the growing child that the man may become a citizen in the true sense of the word.

Nearby was a group on Eyesight Conservation provided by the Eyesight Conservation Council and of considerable practical value.

In a prominent position was a unique series of Safety First photographs, enlarged to poster size and depicting the policeman as a friend of the school child as well as showing in a striking manner the possible accidents resulting from carelessness of a child as regards street cars, automobiles, explosives, all depicting either the actual person who received the injury, following the accident, or else certain posed photographs demonstrating the very happenings at the time of the disaster. This is a group gradually becoming somewhat famous through the efforts of Officer White, a policeman detailed as Safety First instructor in the schools and through whose efforts the child accident incidence has largely decreased. The idea is unique and Officer White is very much a pioneer in the field, very few cities having this feature at present.

Having seen the exhibits the audience were ready for the play. The popular approval of the whole plan was easily demonstrated by the crowd which overflowed the hall.

The play was called "David and the Health Elves" and was under the direction of Miss Talmage, a teacher of considerable experience in this work. About two hundred children took parts. The scene was a bedroom, painted in yellow, with the nursery idea carried out in a border of animals which formed the upper portion of the room. A window played a very



To take no interest in ablutions is as bad for the health as to take no interest in food. The baby clinic is responsible for teaching the girls of this school how to bathe the baby.

prominent part and was used to prove the value of fresh air. The children took parts as fairies and elves, with a number representing various vegetables. A number of group and solo dances were distributed through the entertainment. The costumes were well-conceived and exceedingly attractive.

A rough outline of the play is of interest. David is sent to bed, goes to sleep and dreams of elves appearing with messages of how to keep well. Each elf represents some health habit, some food, or some type of foods (protein, etc.). Sunshine and rest fairies come in review and sing David to a quiet sleep.



Miss May Bliss Dickinson, director and founder of the mothercraft courses in the New Bedford Schools.

Some of the important numbers were the "Keeping Clean Dance," the "Health Habit Drill," the Soap and Water Song, "House and Clothing Clean" by the elves and the "Dance of the Fresh Air Fairies." Exercise and song numbers introduced good things to eat, such as "Fruits and Vegetables" who give a dance and song; Captain Milk who leads all foods; "Song of the Milk Fairies," "Dance of all the Foods," "Sunshine and Sunbeams," "Rest Elves," "Song of the Rest Fairies." Each emphasized in a striking fashion certain points regarding

hygiene and health.

The children of the school learned more of health in a most attractive fashion and the thousand parents who crowded the hall received valuable instruction as well and enjoyment. Interest in health literature was marked and the literature was not thrown away.

A Health Bazaar of this type takes much time to prepare, but for real interest and reaching of the very hearts of both parent and child, is highly effective. Having aroused the interest we hold it by more stable and

less showy methods but having made the liaison between home and school as regards health work, results are forthcoming.

Newspaper publicity was gained at the same time. The *New Bedford Sunday Standard* gave a half page feature write-up with photographs and two other articles, each about one-third column in length; the *Morning Mercury* gave two similar stories about a third column each, and the *Evening Times* about the same. In addition several personals of those in charge were printed.

Women's Colleges Study Charity Work

A four weeks' intensive program covering such main fields of social work as medical social service, industrial personnel work, parole and probation, child welfare, immigration, and delinquency, was conducted by the Charity Organization Society of New York City during the month of July for the benefit of representatives from twelve eastern colleges chosen by Student Faculty Committees to utilize this means of securing a well-rounded impression of the requirements of the profession of social work. Observations made will be carried back for the benefit of the classes represented.

A fourth edition has just appeared of the "Handbook of Tuberculosis Schemes," published by the English National Association for the Prevention of Tuberculosis. It gives ready and trustworthy information regarding the operation of tuberculosis activities throughout Great Britain and Ireland.

Development of John B. Stetson Company's Welfare Activities

The Better the Workman, the Better the Work; Hence the Most Complete System Is the Most Profitable

THE welfare activities of the John B. Stetson Company are numerous and varied. Through a long period of years—from 1865, the year of the founding of the business—a system has been built up step by step which aims to make the life of the employee happier and more secure and to enable him to enjoy the full benefit of his work. "In much of this development the company has been a pioneer and has had to feel its way," says the pamphlet called "The Human Element in the Stetson Business." The company has spent and is still spending annually, great sums of money in its welfare work, but none of this is in any sense considered to be charity—either by the officials or the employees."

The company, acting on the principle that the better the workman the better the work, makes an investment in good-will, health, skill, and efficiency. The John B. Stetson Company has in operation several schemes in the nature of profit-sharing plans which are based on the merit system. "A careful record of each employee is kept through the year, and at Christmas time he is rewarded according to his effort." Cash benefits alone have in some years totaled as much as \$550,000.

Twenty-one thousand shares in the Building and Loan Associations have been issued with a total par value of \$4,200,000. The chief purpose of this association is to enable employees to secure their own homes and the only restriction on the allotted shares is that they may be borrowed on only for the purchase of real estate.

In 1897 only 35 per cent of the hat sizers had worked steadily throughout the year. A bonus plan was put in operation and since 1902, when the bonus was increased to 20 per cent, practically

100 per cent of the men have been working steadily.

Since 1902 more than six thousand shares of the company stock have been distributed among the employees making more than one fourth of them

rendered by the company. "There is no feature of its welfare work to which the company has devoted more thought than to the providing of working conditions that are perfectly sanitary. The Stetson Company is housed in splendid buildings of brick and steel construction, designed to allow the maximum of window space. One's first impressions on entering the factory are those of space, light, and air; of fresh paint and clean floors. All parts of the factory are painted at regular intervals by the company's own painters. The twenty-eight acres of floor space are scrubbed or otherwise cleaned once every week, most of this work being done by electric scrubbing machines. A vacuum cleaning system has been installed.

The sanitary system is on a par with the systems of most modern office buildings. Filtered and ice-cooled water is pumped through pipes that supply every department. Most of the dressing rooms are equipped with shower baths. And the toilets fitted with the most up-to-date fixtures are kept spotless and odorless.

Two rest rooms and a first-aid room are located near the women's working quarters. In the first aid room a graduate nurse and assistant are in constant attendance. The factory physician is on duty every afternoon at 3:30 to go over all cases that need redressings, and then at 4:30 has office hours in the building when employees may consult him about their condition, if they need medical service. The first aid room treats from one thousand to twelve hundred cases monthly. A dentist gives as much time as is needed to care for the teeth of the employees.

The more serious cases coming to the first aid room are treated by the



Welfare visitor and company nurse in front of the Stetson Hospital.

stockholders.

To encourage saving, a Christmas Club was started. Some then found that they had saved more than they cared to use for this purpose and, the company agreeing to pay 5 per cent interest on sums not withdrawn founded a Saving Fund, the deposits soon reached a total of \$160,000. A cooperative store is also in operation selling groceries and non-perishable foodstuffs. Members may also buy their coal at a saving through the



The cafeteria kitchen of the Stetson Company is typical of the high grade of sanitary installation maintained throughout.

store and arrange for payment on a weekly basis.

The financial provisions, however, are not the most important services

physician or sent to the Stetson Hospital, nearby. This institution while having provisions for sixty or seventy people is not restricted in its use to the company employees who constitute only 13 per cent of all patients. The hospital is thoroughly modern in every respect and maintains a large out-patient department.

Applicants for employment are required to undergo a thorough physical examination. If any employee fails to report for two days a visiting nurse calls at the home.

The company maintains four cafeterias, smoking rooms, an auditorium for the use of the employees, athletic field, classes in Americanization, a Sunday school with an average attendance of more than nine hundred, a Boy Scout Troop, Field Corps for older boys and girls, a chorus and other organizations for the activities of the young people of the neighborhood.

A Factory Management Committee, provisions for the adjustments of complaints and grievances, suggestion system, executives club, quarter century club, pensions for long and faithful service, sick benefits and group insurance, are other factors that add to the welfare and content of the workers.

A recent communication from Milton D. Gerhis, Second Vice-President says, "We feel, however, that the light and airy condition of our rooms, the filtered water supplied in every department, possibly has more to do with the health of our people," than any other of the activities.

Finger Printing as a Means of Identification

The value of infallible means of identification is the basis of a resolution asking that the New York Law (Chapter 466, Sec. 1237-9) "be so amended as to include foot printing of all children at birth, to include the finger print of the mother of said child, which must appear on the birth certificate; the finger printing of both parties to a marriage license and the finger prints of all deceased on all death certificates, and that all children be fingerprinted at school age."

It is said that a measure of this kind would greatly simplify the tasks of identifying abandoned babies who remain unidentified, of locating lost children, victims of aphasia and amnesia, and of finding the relatives of stolen children, or of those who meet accidental injury.

The procedure is advocated by the International Association for Identification and the New York measures have the support of the 350,000 women represented in the New York Federation of Women's Clubs.

Important Changes in Pennsylvania Hospital Law

The Pennsylvania legislature has passed and the Governor has signed an amendment to the county hospital law, which gives counties the right of eminent domain in acquiring land for tuberculosis hospital purposes and also gives the hospital board and the county controller joint supervision with the county commissioners in erecting such hospitals. As amended Section 2 of the county hospital law now reads as follows:

Section 2.—If a majority of the voters upon such question at such election shall be in favor of the establishment of the hospital the county commissioners, county controller, where such office exists, and board of trustees, hereafter provided for, shall have plans and specifications prepared and shall select and acquire a site for such hospital by purchase or condemnation with the same power and with the like procedure as land is now acquired under existing laws by school districts for school purposes, the county commissioners exercising the authority exercised by school directors for that purpose. Such plans and specifications and the location of such site shall be approved by the Commissioner of Health before the construction of any building is commenced. Upon the approval by the Commissioner of Health of the plans and specifications and the location of such hospital the hospital shall be constructed and equipped under the direction and supervision of the board of trustees, the county commissioners, and the county controller, where such office exists, and in the same manner as other county buildings are constructed and equipped.

Under this change it is expected that several counties which have not made progress in providing a tuberculosis hospital will be able to act soon.

Employees' Mutual Benefit Associations

Under the above title, Bloomfield and Bloomfield of Boston, consultants in industrial relations, have published privately a survey of the organization and methods of administration of benefit associations. It contains tabulations of the company, plan, and date established; eligibility require-

ments; methods of administration; source of funds; benefits; and methods of amendment and dissolution for twenty associations and administered by the employees, eighteen administered by both company and employees, and five administered by the company.

Such plans date back to about the year 1870. The employee-administered association usually has at its head a governing board, the company administered plan is headed either by the personnel director with necessary assistants or by a special committee, while among those jointly administered the widest variations are found. In a large number of the latter type a certain number of the governing board are appointed by the company and a certain number elected by the employees.

Poison Gases Utilized to Fight Mosquitoes

Poison gases, such as used in the World War, will be employed to fight the mosquito, according to an announcement recently made by Frederick A. Riley, chief inspector of the Mosquito Extermination Commission of Atlantic City. The day is about over, he said, when a mosquito can menace the lives of thousands. The New Jersey agricultural extermination station has been experimenting with different chemicals and gases. Drainage of the salt marshes is only a temporary measure, and most of the methods of treating the water protect against the breeding places for short periods of time only, but it is hoped by means of poison gases to destroy the danger centers permanently.

Beginning June 15 the welfare department of the Yellow Cab Company, Chicago, has maintained an infant welfare station at the Keystone Hospital for the benefit of the children of employees.

Minnesota Recommendations on Health

The committee on public health of the League of Minnesota Municipalities, received full support of the League in their recent convention in their program looking toward the promotion of uniform municipal health laws throughout the state. They went on record as opposed to the fee basis of financing local health departments, and as in favor of state aid to every school district proportionate to the number of children, for the purpose of holding annual or semi-annual medical examination of all school children, and for the employment of nurses.

The City Manager and Public Health

Frederic J. Haskin, in a news service article tells the following story of Petersburg, Va., showing how the adoption of the city manager plan of government effected public health.

In 1920 there were 1,600 houses in the city without water or sewer connections. Now, after an expenditure of nearly \$400,000, the work of extending the water and sewer system is nearly complete. Only 300 houses remain without connections and nearly all of these will be reached in 1923.

Under the old government the garbage was collected by the city engineer under the supervision of the street committee. The incinerator was conducted by the health officer under the supervision of the health committee. The two committees did not agree, so the garbage was hauled to a dump, where it caught fire from time to time and made a frightful nuisance, and the incinerator worked only a few hours a week to burn what was hauled to it from private stores. The streets were extraordinarily clean in some sections where "white wings" swept them several times a day—in the neighborhoods of wealth—and just as dirty downtown and in the other sections.

Now all the garbage from all the town is burned in the incinerator, and the streets are swept in all parts of the city. The whole street cleaning and garbage collection service has been reorganized. Approximately twice as much work is done as under the old system. The cost is about \$10,000 a year less than it was.

Having laid the foundations by these fundamental sanitary measures, Mr. Louis Brownlow, the city manager, addressed himself to the improvement of the public health service. He took the health department from three little rooms upstairs in an old building and put it in a building of its own, called the health center.

There, under one roof, are centered the health activities of the community, public and private. The venereal disease clinic formerly conducted by the Red Cross was taken over by the city, and the Red Cross opened in the health center a child welfare station and baby clinic. A tuberculosis clinic was opened, after a survey of the entire city and the actual clinical examination of more than 1,700 persons has demonstrated the need for the service. The bacteriological laboratory not only does the contagious dis-

ease work and the water and milk control work for the city, but also diagnostic laboratory service for private physicians for a fee, making the laboratory practically self-sustaining. The mothers clubs, the associated charities case conferences and many other organizations interested in health hold their meetings at the center.

The number of citizens coming to the health office for definite health

death rate for colored babies was 229. In 1921, it was 212. In 1922 it was only 128.

Services of the U. S. P. H. to Industry

The value of properly kept medical records does not end with the plant that keeps them. The U. S. Public

Health Service has for some time been collecting industrial statistics in order to obtain fundamental information needed for effective disease prevention work. As yet the Service is ignorant as to the actual prevalence of diseases that cause suffering and loss of efficiency but not death. Knowledge as to the sickness "expectancy" for all industrial employees and for certain kinds of employment is needed.

If enough sickness records can be obtained to permit generalization after making due allowance for fortuitous conditions and hazards the standards and averages establishes can be used by plants for comparison with their own sickness rates. Such comparison will probably indicate to many of them why some of their departments have found it difficult to keep men.

The Public Health Service will, whenever possible, be glad to cooperate in the study of sickness and disease prevention in different plants by helping them to devise forms that are especially suited to the plant and that yet conform to certain standard requirements, and by helping in any analysis of the records that may tend to improve working conditions and to lessen losses due to sickness.

The Service will be glad to receive from any plants regular reports that

conform to standard requirements, and to tabulate, analyze, and publish statistics based on them.

In certain instances the Service will assist companies in making a detailed analysis of their sickness records in order to measure the bearing of such factors as sex, age, nationality, marital status, occupation, and length of time employed, on the incidence and severity of disease.

A COSTARICAN COSTERMONGER



A Costarican market may be an open, unprotected plaza, it may be a stall contrived with a few palm leaves and old sacking, or it may be a cart like this trundled along the village street. It is not usually very stimulating to the appetite.

INSECT CONTROL IN PANAMA



Marketing breadstuffs in Panama is made safe so far as dust and insects are concerned by approved carts fully protected with glass covering.

service has been increased tenfold, in two years. The result is that both in 1921 and 1922 the city had the lowest morbidity rate and the lowest mortality rate in its history, lower in 1922 than in 1921.

Infant mortality shows a remarkable decrease. In 1920, the infant mortality rate, both white and colored, was 161. In 1921 it was reduced to 149. In 1922, with the health center fully organized, it was reduced to 106. The record among the colored population is astounding. In 1920 the

American Home Economics Association in Annual Meeting

THE economist of all persons achieves perspective. He discovers trends, and perceives that the minutest movement of his own becomes part and parcel of the world's work. He learns that isolation either of facts or acts is not merely stupid; it is impossible. It follows that when the economist elects to concern himself about the everyday affairs of life, order evolves and a more scientific accounting is made of every potential. There are many who see in the rapid growth and extending activities of the American Home Economics Association what may be considered as one of the best indications of sound social intelligence.

Untrained housewives are the rule, not the exception. Everywhere home-making, the finest of the fine arts, is learned in the painful and expensive school of experience. There is help for the situation, however, through the home-makers' committee of the American Association of Home Economics. For the first time time-study is being correlated on labor in the home. Leisure for the housewife is not only made desirable, but is being found possible to secure; and ways are devised to make it profitable to thousands of women formerly ground down by never-ending tasks. Actual supervision in the application of home budgets is conducted by the extension division. Whether the income applied to household needs is a thousand or a hundred thousand, wisdom in appropriation is acquired, not gained by a chance gift. Perhaps it is because many of the most difficult problems are encountered in incomes of large amounts that the graduate in home economics resents calling her service to the home-maker social service.

Whether the devotees of home economics choose to call themselves professional consultants or home missionaries, the results are enormously beneficial and their influence on the increase, for the Association has gained in membership from a meager eight hundred two years ago to 4,840 at the present time. Eleven hundred members, made up chiefly of the professional and business quota, registered at the sixteenth annual meeting held in Chicago July 30 to August 4.

Much interest was in evidence in

the sessions of the Homemakers' Committee. Studies of the housewife's working day (winter schedules), reported from the University of Missouri by Mrs. Elsie Park Duncan, show that an average of six hours and ten minutes must be devoted to daily household tasks, this representing one hour and thirty-seven minutes per person. Only efficient management can secure requisite leisure for the housewife. Time and energy saving devices contribute their part. Practicable time schedules must do the rest. The Iowa work day plan, definitely helpful and practically tested out, was discussed by Miss Anna E. Richardson, of the University of Iowa.

One section was devoted to the problems concerned with institutional management, a subject having as many phases as there are institutions. Its commercial aspect was treated by Vernon G. Stevens, of the La Salle Hotel, Chicago. He devoted much of his time to the fundamental requirements in economics for the training of successful hotel administrators. A course for hotel administrators as worked out by Cornell University is based on a four year high school curriculum requiring fifteen units—to include three in English, three in a foreign language, one in algebra, one in geometry, one in history and the remainder elective. To this is added eighteen units, apportioned among the fundamental sciences, bacteriology, physiology, physics, the science of nutrition, composition and character of foods, quantity cooking, and laboratory practice in cooking.

The responsibility of a hospital for the dietary supervision of students and house employees, professional and otherwise, was described by Rena Eckman, Michael Reese Hospital, Chicago. The high school and university were likewise considered, as were subjects having to do with the status of training in home economics for positions in the commercial field. Unusual interest and very wide business affiliations were manifested in the activities of the Home Economics in Business Committees. Both press and commerce were well represented. An urgent appeal was made for better rapport between academic and commercial forces by M. E. Harrison of

Washburn Crosby Company, Minneapolis. Anna E. Richardson of the Iowa State College discussed the business of buying. If, as one authority has stated, 85 per cent of the buying is done by the housewives of the country—practically all of them untrained for such function—it is time, said Miss Richardson, that some of the emphasis placed upon production be transferred to the business of buying. The University of Iowa maintains a group of 724 women in its extension division who serve in the capacity of budget advisories. Miss Richardson made a very rational argument for more intelligent and more accurate advertising. The annual expenditure in this country for advertising is around seven hundred million dollars against a sum of about fifty-five million dollars for education. A good product is, of course, wasted unless the consumer is advised of it, but honest advertising is imperative, and its educational aspect is not to be overlooked or underestimated. Business can and should have the objective of rendering the home mechanically efficient through educational advertising.

The days of business secrecy are over and the merchant now furnishes reliable information to the consumer.

The scientific program reported on experimental studies, and Dr. Arno B. Luckhardt reported on the physiology of hunger and appetite on the basis of researches being conducted by the department of physiology of the University of Chicago. Laboratory demonstrations on various subjects were open daily to members of the convention.

Officers were elected as follows: Alice F. Blood, Simmons Colleges, president; Frances Swain, Chicago Normal College, vice-president; Katherine Blunt, University of Chicago, vice-president; Anna Richardson, Iowa State Agricultural College, vice-president; Mary Sales, Ohio State University, secretary; H. G. Turpin, Baltimore Trust Company, Treasurer; Lita Bain, Grace Dodge Hotel, Washington, D. C., executive secretary; and Keturah Baldwin, 1211 Cathedral Street, Baltimore, Md., office secretary.

The 1924 meeting will be held in Buffalo, N. Y. and the conference will be held on the Pacific Coast in 1925.

Day Nurseries in Industries in France

About ten years ago the directors of the *Galeries Lafayette*, one of the big department stores in Paris, becoming justly alarmed at France's decreasing birth-rate, started a most interesting experiment. They determined to demonstrate that work for married women was not incompatible with motherhood. To this end they organized a day nursery for the babies of their 8,500 employees.

The day nursery is established on the premises in several adjoining clean and airy rooms, and is free to all infants of employees from one to fifteen months of age.

Each mother receives at the time of her confinement two months' leave of absence from work with full salary (fifteen days before the confinement and six weeks after), and she comes back to work bringing her baby with her. These mothers are entitled to arrive half-an-hour later and leave half-an-hour earlier than the other employees so that they escape the general rush.

The only condition of admission to the day nursery is that the mothers shall nurse their babies, if they are able to do so. In order to do this they are allowed to leave their work every three hours to feed their children. Before entering the feeding room, each mother puts on a white overall so that the child shall not come into contact with her working clothes. If the mother's milk is insufficient, the nursery provides extra milk, which it receives twice daily from the country around Paris. In addition, the business, while providing lunch for all its employees, allows each mother a supplementary milk ration.

Any child suspected of illness is immediately put into an isolation room, and, if proved to be unwell, is at once taken home by the mother. Thanks to these precautions no epidemic has ever broken out in the nursery, which

is regularly visited by the doctor in charge. Once a week all the babies are weighed and the result noted on the observation sheet which contains the life history of each little day-boarder.

tiny chairs, and the motherly pride of the matron in charge are all proof that the experiment made by the *Galeries Lafayette* has proved wonderfully successful.

The example has been followed by other big Paris shops, including the Louvre, which in some cases have also opened day nurseries and in others grant special maternity benefits to their employees.

Good Food and Scholarship Related

The Northwestern University girls recently nominated for Phi Beta Kappa are not so reserved and studious as they are at times pictured. One secret of their scholastic success is not in midnight oil, but in wholesome food and regularity in eating. At Willard hall, where several of the honor students reside, their bill of fare includes no such stimulating beverage as coffee or tea; the drinks are limited to cocoa and milk.

From a survey of the 150 women living at Willard Hall, Miss Bernice Gordon, house director, has just discovered that the scholarship girls are those who never fail to eat breakfast on schedule, and those who are lax in table attendance invariably rank low in class work. For breakfast Willard hall girls are served with food enough to satisfy the keenest appetite. Fresh fruit heads the menu each morning, followed by meats, or eggs, and warm breads.

Miss Gordon admits that much of her time is consumed in preparing charts of food values estimated in terms of calories and vitamins. The average college girl needs approximately two thousand five hundred calories per day. Of course, she says, some

who are athletically inclined need more and others can thrive on less.

Fresh vegetables have a prominent place on the tables at Willard. Head lettuce with thousand-island dressing is the favorite salad. Their favorite dessert is steamed chocolate pudding with hard sauce.



MATTHIAS NICOLL, JR.
New Commissioner of Health of New York State

MATTHIAS NICOLL, JR., who succeeds Dr. Biggs as Commissioner of Health of the State of New York, was born in New York City in 1868 and educated at Williams College, (A.B., 1889) and at the College of Physicians and Surgeons, New York (M.D., 1892). He specialized in pediatrics and the care of infectious diseases. His work, in co-operation with Dr. W. H. Park, on the intraspinal injection of tetanus antitoxin was of fundamental importance in demonstrating the superiority of this procedure as compared with other methods of injection. In 1915 Dr. Nicoll was appointed director of Public Health Education and Secretary of the recently organized State Department of Health of New York and since 1917 he has served as Deputy Commissioner. Dr. Nicoll is a fellow of the New York Academy of Medicine and of the American Public Health Association and a member of the Advisory Editorial Board of the *NATION'S HEALTH*.

The whole atmosphere of this delightful day nursery is one of health and happiness. The spotless cleanliness of the white cots with their gay blue coverlets, the fat cheeks of the babies who lie on their backs playing with suspended toys, toddle round the pens, or sit in solemn conclave in their

Coloring for Foodstuffs

THE maker of sweets only seventy years ago used as coloring lead chromite, Prussian blue, red lead, and vermilion, although even before the advent of coal-tar products he had at his disposal a number of harmless vegetable substances—such as litmus, indigo, and sap green from the berries of the buckthorn, cochineal, gamboge, turmeric, and saffron. Today, in the United States of America, and largely in England, the use of the following mineral pigments for food coloring is permissible—manganese brown, ultramarine blue, ultramarine violet, ultramarine green, and iron oxid brown. All that can be said against these colors is their insolubility, their complete indigestibility, and the fact that relatively large amounts must be used to give sufficient color.

A paper read by Mr. F. W. Richardson, F.I.C., public analyst for Bradford, West Riding, etc., before the Leeds Junior Branch of the Society of Dyers and Colorists, and abstracted in the *British Food Journal*, in discussing this subject goes on to say:

Aniseed balls contain as much as 2 per cent of iron oxid brown. It is an offense under the Food and Drugs Act to use more than half a per cent of French chalk or mineral silicate in the facing of rice. Why should it not be an offence to use excess of mineral colors in sweets? The danger of both kinds of substance is the same. By modern methods dyestuffs are made in a reasonably pure condition, and therefore the action of the colors themselves on the human organism need only be considered. With regard to the action of specific groups, nitro and nitroso groups are more or less toxic, whether they replace a hydrogen atom in the nucleus or one in a hydroxyl group.

Aurantia, the ammonium or sodium salt of hexanitro-diphenylamine, and picric acid are poisonous, while naphthol yellow S, known also as the sodium or potassium salt of dinitro-a-naphthol-b-monosulphonic acid is not poisonous, as in spite of two nitro groups the presence of a sulphonic acid group causes neutralization of drug action. Another harmless yellow is Curcumin S, also known as "Sun Yellow," the sodium salt of azoxy-stilbene-disulphonic acid. Naphthol Yellow S and Tartrazine are the chief yellow food colorings now used; sometimes under the significant name of

"Egg Yellow." Of late years there has been an undesirable increase in the number of so-called "Egg-substitutes," "Egg-powder," and the like, the only resemblance to eggs being the color. I think the Ministry of Health should take action. One of the most widely advertised of these specious articles consists entirely of rice flour colored with orange yellow dye. The analyst must see to it that by no chance Martius Yellow is used in place of the sulphonated derivative Naphthol Yellow S, as it is poisonous.

The following red dyes are safe to use because of their heavy content of sulphonic acid, and their freedom from nitro and nitroso groups—naphthol red S (amaranth, fast red D, bordeaux S), chloramin red B (benzo scarlet BC), carmoisin (azorubine S, fast red C), ponceau 2R, fast scarlet BC, and rhodamin B. Some beautiful colorings can be obtained by the use of eosin. Erythrosin D and B contains 40 per cent of its weight in iodine, and is yet safe for use as a food color, but the amount necessary to give a pink color is very small. Xylene blue BS and gentian blue 6B are salts of triphenyl rosanilin and triphenyl-para-rostanilin. This is said to be physiologically inert, as are blues derived from diphenylamine. A similar blue is nigrosin, but the fact that it is only soluble in spirit, and has a black tone, renders it unserviceable for food coloring. Methyl violet 6B usually contains over 20 per cent of zinc, as also does victoria green or new fast green 3B, but violets and greens, such as malachite greens, new victoria green, new green, fast green, ethyl green, emerald green, fast green J, and benzaldehyd green, are made without zinc, and are regarded as harmless for food coloring.

In the United States the use of diamond green and fast green is permitted, as also is dinitrosoresorcin. The only brown dye recommended by the U. S. A. authorities is chrysamin R, the sodium salt of di-tolyl-disazo-b-salicylic acid. Brown is, however, only used for sweets, and the color chosen is usually an iron oxid brown. The facts that malachite green and brilliant green are antiseptics of wide application, that methylene blue is useful internally for rheumatism, cystitis, nephritis, etc., and that scarlet red stimulates the growth of epithelium over granulating wounds, are scarcely good arguments for their admission into food.

Fat Consumption Figures in Different American Cities

Fats of various kinds to the amount of 4,600,000,000 pounds or an average of 43.8 pounds per person, are consumed annually by the people of the United States, says the *New York Times* on analyzing a study of this subject reported by Mr. F. M. Barnes, head of the Edible Oils and Fats Division of the Procter & Gamble Company. "If all the edible fats consumed yearly in the United States were laid end to end in pound prints," said Mr. Barnes, "a cable 353,280 miles long would be built. Such a rope of pure fat would wind fourteen times around the globe and have a little matter of 3,280 miles left to loop up in a bow. This impressive quantity however, is 1,385,000,000 pounds less than should be eaten, according to dietitians, who claim that at present the average per capita consumption is some thirteen pounds less than it should be and give fifty-seven pounds of fat per person per year as the correct individual quota for perfect health.

"Government figures show the growing inclination of housewives to turn away from lard to vegetable fats. Whereas twenty-five years ago lard was practically the only cooking fat used in the home, vegetable fats now make up 33.82 per cent of the whole amount used in American kitchens. The figures for fat consumption in various cities of the United States vary greatly, owing probably to differences in cooking habits based upon climate or foreign traditions, but they serve to show the trend of diet locally. According to the figures, gathered by local authorities, each of the 191,601 inhabitants of Omaha eat 153.9 pounds of fat a year, while the 993,739 people of Detroit eat only 37.8 pounds each. Little Rock's 65,142 inhabitants consume each 188 pounds, or a total of 12,260,620 pounds of fat per year. Birmingham, Ala., with 178,806 as the figure of population consumes 13,630,000 pounds, or 76.2 pounds per person. Atlanta, Ga., with 200,610 persons consumes 9,334,000 pounds, or only 46.5 pounds for each person. The people of Washington eat 48.6 pounds, of St. Louis 48.7, of Grand Rapids, 71.

A little booklet entitled "Open Doors" has been written by Dr. John Thomson for the mothers of mentally defective infants. The advice given is simple and practical. The book should be useful to child welfare workers, nurses, and even doctors as well as mothers.

Optimum Weight in Relation to Longevity

A distinction must be made between the optimum weight and the average weight says the *Statistical Bulletin* of the Metropolitan Life Insurance Company for March, 1923. In the past the average has often been assumed to be the best weight and tables of averages have been very widely circulated and used as guides by physicians, nutrition and clinic workers and others concerned with the health of children and adults. In this way there has sprung up the general assumption that deviation from the average weight was undesirable and indicated trouble.

We now know that such assumptions about the normality of the average weight are erroneous. In fact, it can be shown that the most favorable mortality experience is often found among risks whose weights are considerably below or above the averages for their height and age.

At ages under thirty years, the lowest mortality rates among insured persons are found in risks whose weights are above average. An excess of about ten pounds in weight above the average produces the most favorable mortality rates between the ages of twenty and twenty-four years. This excess tapers off until about age thirty, where the most favorable mortality is found among persons of approximately the average weight. After age thirty, the more favorable mortality rates are found among persons whose weights are below average. The amount below average increases with advancing age and at age fifty, individuals appear to be at their best when their weight is as much as thirty to forty pounds below the average.

It seems clear, therefore, that for persons beyond thirty, underweight is distinctly an advantage so far as a favorable prospect of mortality is concerned. It is erroneous to suppose that weight should increase with age, as we have been led to believe by the tables for average weights. This increase with advancing age is, of course, a very common occurrence, but there is every indication that it is a disadvantage and should be carefully avoided. The public health movement in its attack upon the diseases of

adult and later life will do well to bear this fact in mind.

Periodic Medical Examinations

In a paper on the periodic medical examinations of apparently healthy persons (*J. A. M. A., May 12, 1923*,



Open air exercise is absolutely necessary to health in the tropics, and golf courses may be found in many tropical places, and the game is entered into enthusiastically by foreigners and natives alike. The courses, like the Panama Golf Club, are adapted to local conditions and freckles and red-bug bites are regarded as trophies in the quest for health. There are three golf courses on the Isthmus of Panama, located at Panama, R. P., Fort Amador, C. Z., and Gatun, C. Z. Shorter courses are being played at Pedro Miguel, C. Z., and Fort Clayton, C. Z. They are crowded each day by enthusiastic men and women.

80, 19, p. 1376) Haven Emerson presents forms for recording the results of the physical examination as well as the history. The author discusses the purposes, methods of examination, and results, relating these to the forms presented.

Findings from the examination of 958 apparently well persons in New York City are presented. These individuals of various races, both sexes and all ages, chiefly among the wage earning class either considered themselves well at the time or were aware of some condition for which they did not consider medical care necessary. Of those examined 2.5 per cent were found to be in good health, 72.7 per cent needed definite medical treatment (this number included over two hundred who needed, in addition, advice as to personal hygiene and habits), and 24.7 per cent needed only hygienic advice to correct or arrest existing errors of bodily function or defects of structure.

Increase in Use of Pure Water in New York State

Eighty-six per cent of the people of New York state are now supplied with drinking water from public supplies and 73 per cent of the population are served by treated or purified

water, according to C. E. Holmquist, director of the Division of Sanitation of the State Department of Health, who has just completed a special investigation and report on the filtration and chlorination of the public water supplies of the State. Mr. Holmquist finds that 9,182-

000 persons in New York state out of a total estimated population of 10,651,000 are now supplied with water from public water supplies and that 7,796,000 persons are served with treated or purified water.

"In 1906, when the Division of Sanitary Engineering was organized and supervision over public water supplies was commenced, about 6,000,000 persons were served by public water supplies and only about 700,000 persons in the State were served by purified public water supplies. It will be seen therefore that since 1906 there has been an increase of some 53 per cent in the number served by public water supplies

and an increase of over 1,000 per cent in the number of persons served with water from purified supplies."

Investigation of Wages in the Candy Industry

There has just been issued by the Women's Bureau of the United States Department of Labor a report summarizing the results of an investigation made by the bureau of labor conditions in the candy industry as typified by candy factories in Chicago and St. Louis, the two cities studied.

One of the points particularly studied in the investigation, which took place during the early months of 1921, was the subject of wages received by women workers in the candy industry. It was found that the time workers constituted by far the largest proportion, 83.4 per cent of the women included in St. Louis and 69.8 per cent of those in Chicago. A comparison of the median earnings of the time workers and the piece workers in the two cities shows that in each case the piece workers earned in round numbers 17 per cent more than did the time workers, St. Louis showing \$11.45 per week for time workers and \$13.40 for the piece workers, and Chicago \$14.35 for the former and \$16.80 for the latter.

Controlling Malaria at Low Cost

"To determine whether a small city, a town, or a rural area could be protected against malaria at a cost which the local population could afford, the International Health Board," says President Vincent, "began in 1916, in cooperation with state and federal authorities, a series of demonstrations in small towns in Arkansas and Mississippi. The net result of these experiments was so encouraging, that for the season of 1920 widespread demonstrations were begun under the joint auspices of the local governments, state health departments, the United States Public Health Service, and the International Health Board. The program for 1922 included 34 county-wide malaria control demonstrations and 32 town demonstrations in ten states. All the demonstrations have afforded cumulative proof that under normal conditions an average community can practically rid itself of malaria at a per capita cost of from forty-five cents to one dollar per year. In addition, the Board conducted experiments in mosquito control by use of fish and by screening under a variety of conditions, and tested the curative and protective possibilities of quinin."

Shower Bath Standards Promote Hygiene

Of interest to those planning shower baths, either for public institutions or private use, are the suggestions of the Committee on Shower Bath Standards of the American Association for Promoting Hygiene and Public Baths submitted at the Annual Meeting of that Association, held in the City Hall, Jersey City, N. J., May 11 and 12.

The chairman of the committee is August P. Windolph, of Werner & Windolph, New York City, the other members being Robert F. G. Kelley, superintendent of the Baltimore Public Bath Commission, and Arthur M. Crane, General Manager of The New York Continental Jewell Filtration Co., Nutley, N. J.

The suggested standards were ordered broadcasted, with an invitation for criticism, in the hope that formal action can be taken at next year's Annual Meeting. The standards suggested are as follows:

- (1) The showers and dressing compartments should be well lighted.
- (2) The shower and dressing compartments should be constructed of a material impervious to water, sanitary and easily cleaned. The interior surfaces of compartments should pre-

sent a perfectly smooth surface with as few cracks and crevices as possible to avoid the shelter for dirt and disease germs.

(3) The floor of compartments should be of a sanitary material and sloped to carry off the water used in bath and should be non-slipping.

(4) There should be an ample supply of hot and cold water at all times.

(5) All pipes, fittings and valves should be of heavy and durable metal placed so as to be easily accessible.

(6) The shower head should be self-cleansing and so constructed that the water consumption may be controlled, and placed at the top of the shower compartments set at an angle of 45 degrees.

(7) The hot and cold water should be controlled either with a mixing valve so designed to prevent back water pressure or with separate valve on each hot and cold water line.

Aid in Food Rationing for the Family

The Nutrition Bureau of the New York Association for Improving the Condition of the Poor has issued in their publication No. 120 a book on "Food for the Family" which tells how to feed children of different ages properly; gives the proper diet for a nursing mother, and for the mother before the baby is born; plans menus that show how to prepare meals to fit the needs of both children and adults, and indicates how such meals may be arranged with economy in mind, or, how eggs, butter, milk, vegetables, and fruit may be added to advantage. Recipes are given for the different dishes, and a section on the lunchbox gives helpful bits about buying economically.

Diet in sickness likewise comes in for attention and directions are given for buying and marketing records which afford a check upon the adequacy of the dietary as well as upon costs. Get the housewife anxious to do all she can for her family, and give her this handbook, and intelligent and effective management will certainly improve the status of the family.

Medical Survey of Maryland State Prisons

Of interest to all officials of corrective institutions is the report of the committee of Baltimore physicians who last summer made a constructive survey of Maryland state prisons. Examination of the methods, equipment and evident needs of the institutions, and comparison of the data with re-

ports of conditions prevailing in the other states, comprised the agenda of the committee.

The general conclusion reached was unfavorable to the medical organization of the prisons; the service was pronounced grossly unsatisfactory and the equipment lamentably inadequate. In the way of improvement the committee recommended a complete reorganization, having for its general aim "social progress in preventive science, including on the one hand medical science whose diagnostic and therapeutic contribution rendered before it is too late tends to correct and restrain both mental and physical tendencies leading to delinquency; and on the other hand social science, which tends to raise standards of life among the masses and thus reconstitutes the mileau whence vice and misery spring." A study of the physique, intellect and character of each prisoner is advised; and an inquiry into the environmental factors that have impelled him or her to commit crime.

There should be a special officer known as medical supervisor, as well as the resident physicians; and two visiting consultants, specialists to be called when required, two trained nurses and two trained social service nurses.

It was estimated that the carrying out of the proposed plan would require \$11,800 per year, an increase of \$3,600 over the medical expenditure during the past fiscal year.

Japan Eumulates American Preventive Work

Dr. Rioji Tozawa, director of the Municipal Tuberculosis Sanatorium in Tokyo, Japan, who came to the United States for the purpose of attending the International Health Conference in San Francisco, states that methods of disease prevention, more particularly as carried out in child welfare work and tuberculosis work, are being intensively discussed in Japan. Dr. Tozawa is particularly desirous to duplicate in Japan the nutritional work he has observed in the United States, and to develop the possibilities he sees for public health cooperation between Japan and cities on the Pacific Coast.

During the first quarter of 1923 4,882 nurses have applied in California for renewal of their certificates as required by Section 5½ of the Registration Act. This registration will enable the Bureau of Registration of Nurses to compile the most complete list of nurses yet secured in California.

Craig Colony Care of Epileptics

Craig Colony, (Soneya, N. Y.) for Epileptics has issued its twenty-ninth annual report. Craig Colony differs from the average institution of the kind in that it does not confine its objectives to the custodial care of its population, but designs to accept only those epileptics whose condition may be improved under scientific and humane care. And the scientific and humane care are provided. The condition of patient life has been thoroughly protected, principally through the maintenance of social conditions adapted to their limitations; routine methods, and educational procedures—adequate, yet perfectly adapted to the needs of the handicapped group—have promoted happiness and have made effectual and productive living possible for the two thousand persons numbered among its population.

The need is great. Probably no single public health problem of the present day is more extensive or more universally pressing than the segregation and care of epileptics. Any community desiring to meet this problem can do no better than to study the ways and means evolved at Craig Colony. Here every possible means of ameliorating this dread condition are employed, and scientific observation on a large scale is continuously bringing out useful facts in regard to the disease. The report includes several interesting features of medical activities in the interest of the patients. Death usually results from some concurrent condition. The unusually low incidence of malignant disease is ascribed to the usually foreshortened span of life in the epileptic. Average readings of blood pressure gave no indications of a reciprocal relationship between hypertension and

epilepsy; in fact, if the records indicate any deviation from the normal in this regard, it tends to suggest hypotension. Lines of original investigations have been hampered chiefly by the lack of funds, but the chief work of the year was a study of hematology of epilepsy, including minute investigation of some three hundred patients, which seems to indicate a moderate but persistent increase in the number of leukocytes in the blood.

The daily number of patients cared

lack of facilities for the proper distribution of exhaust steam is responsible for an annual waste that is the actual equivalent of more than one thousand tons of coal.

Personal Factors in Accidents in Steel Industry

Machinery is no longer the main causative factor in accidents if the figures taken from an analysis made of more than 250,000 accidents occurring in the plants of the United States Steel Corporation and reported in the *New York Times* may be taken as representative of other industries. In this series hand labor was found responsible in 41.04 per cent of the accidents recorded and only 4.88 percent of the accidents could be traced directly to machinery causes, exclusive of accidents attributed to overhead cranes.

It becomes increasingly evident, says the report, that mere mechanical device for protection has a much smaller place in the safety program than consistent measures of education to reduce the hazard of the irresponsible workman. The United States Steel Corporation, therefore, systematically informs all operatives of the inherent dangers of given processes and, by giving special attention to the personnel factor, have been able to get the majority to accept the principle of interdependence of workmen for mutual safety.

Approximately nine thousand employees are members of safety committees whose function it is to make plant or departmental inspections, review accidents, and make suggestions regarding the problems of increasing the safety of operation. It is conceded that the industrial hygienist has a specific problem in this direction.

Gains in Child Labor Legislation

Gains in child labor legislation for 1923 show an improvement in child labor laws in only eight states. The legislatures of forty-four states have convened since the national child labor tax law was declared unconstitutional. Thirty-two of these states have laws which do not measure up to the standard of the federal law. In only eight of these—Delaware, Maine, Michigan, Missouri, North Dakota, Rhode Island, South Dakota, and Wyoming—was there any improvement in the age and hour standards. The failure of the states to deal severally with this urgent question is held by the Federal Children's Bureau to indicate that it is a national, not a local problem.

RIVERLIGHT, VACATION HOME FOR BLIND



Underwood & Underwood
Riverlight, probably the only vacation home of its kind in the country, is a vacation home for the blind conducted by the New York Association for the Blind. Located in an historic house in a seven-acre plot, the home has taken care of four groups of blind visitors throughout the summer season. Hiking, swimming, boating, calisthenic drill formed the summer's routine, the same as thousands of other camps throughout the country. The guests of the camp washed their own dishes and cared for their own beds and clothes.

for was 1,535, and the per capita cost for 1922 was \$360.90, a cost that is comparatively low because of a margin of profit on farm, garden, and dairy products in the amount of \$19,467.71—a very strong argument in favor of colonies for the feeble-minded. That economy of administration is hampered here, as is usual in most state institutions, by badly balanced appropriations is shown by the demand for service which greatly exceeds the limit of two thousand admissions, and by the lack of provision for certain limited numbers who require merely custodial care. A glaring lack of unintelligence in appropriation is brought out by the fact that ten years ago legislative appropriation permitted the erection of a smoke stack of sufficient capacity for an adequate central heating plant, but thus far the balance of the necessary funds for completing the plant has not been forthcoming. Meanwhile, as shown by the engineer's report, the

LATE HEALTH DECISIONS IN THE COURTS

By DOROTHY KETCHAM. UNIVERSITY HOSPITAL, ANN ARBOR, MICH.

ON SEPTEMBER 14, 1916, an employee, sixteen years of age, while employed as a rivet heater by the Union Iron Works, fell from a ladder, breaking both his legs and an arm. It is conceded that the injury arose out of and in the course of employment. The company placed him under the care of two physicians, but later removed him to their own private hospital, where he was treated by petitioners own physicians. The injuries were severe and for four years after the injury there was a drainage of pus from one leg due to necrosis of the bone and unhealed wounds. During this time he went around on crutches, wholly unable to work. His treatment for the entire four years after leaving the hospital, consisted largely in calling daily at the hospital and having the dressing changed. He lost faith in the treatment when his condition was apparently growing worse and consulted a doctor who advised immediate operation to remove the diseased bone. He reported this to the petitioner's physicians, who felt that such an operation would not be opportune until the clearing up of a discharging sinus in the left leg, in which they were confirmed by the opinion of another physician and the medical director of the Industrial Accident Commission. After waiting a month for the petitioner's physicians to relieve his condition, the injured employee in November, 1920, abandoned their treatment and placed himself under the care of Dr. Hunken (previously consulted) who operated twice, the operations being a complete success. The discharge was stopped, the bones united, the wounds healed and the injured employee discarded his crutches and became self-supporting. The employee then made application for an award covering expenses of operation and treatment by Dr. Hunken. There is no question of malpractice, damages, or fault on the part of the employer. We cannot here go into the various considerations raised.

The action is founded upon the provisions of the Workmen's Compensation Act whose underlying principle

is "the providing of compensation to an employee for injuries resulting from his employment." It emanates from the economic thought that personal injury losses incident to an industry are a part of the cost of production, to be borne, just as the depreciation and replacement of a machine is borne, by the industry itself, which compensation will be included in the cost of the product of the industry.

The primary purpose of industrial compensation is to insure to the injured employee and those dependent upon him adequate means of subsistence while he is unable to work, and also to bring about his recovery as soon as possible in order that he may be returned to the ranks of productive labor. By this means society as a whole is relieved of the burden of caring for the injured workman and his family, and the burden is placed upon the industry. That the injured workman and his dependents may be cared for, compensation in the form of disability benefits is provided for by the act approximating the wages earned by the employee, and varying with the degree of disability and dependency. And, to secure the speedy return of the workman to productive employment, it is provided that medical and surgical services shall be furnished by the employer. This liability for medical and surgical services is not, therefore, a burden placed upon the employer as a penalty for any failure of duty on his part, but is merely a part of the whole compensation due the employee as the result of his injury. It therefore follows that the medical and surgical services contemplated and called for by the statute in question should be such as will tend to secure the return of the workman to productive employment. In other words—the treatment required by the statute is such as will reasonably and seasonably tend to relieve and cure the injured employee from the effects of the injury, and, manifestly, if the treatment practised and persisted in by physicians furnished by the employer, even though they be conceded to be skilled and competent in their pro-

fession, does not within a reasonable time effect a cure, and thereafter a course of treatment prescribed by other physicians procured by the injured employee does in fact seasonably effect a cure, then it cannot be said that the employer has furnished such medical and surgical treatment as was reasonably and seasonably required. The refusal, after more than three years of unsuccessful treatment, on the part of petitioner's physicians to operate, despite repeated requests to do so, which refusal extended over a period of nine months, during which time the injured employer continued to suffer, and his condition apparently grew worse, was tantamount to a refusal to furnish the treatment seasonably required by the statute. Before the injured employee would be entitled to compensation for expenses incurred in the treatment of him by a physician of his own selection, it would have to be shown that the treatment not only was a success, but that it was reasonably and seasonably necessary to cure and relieve the injured employee. In other words, the injured employee will be permitted, at the peril of having himself to pay the expenses of medical treatment, to secure the services of physicians other than those provided by his employer, and this peril will attach unless it can be shown from all of the circumstances of the situation, including the success of the operation, that his desire and decision to secure the services of other physicians was warranted."—*Union Iron Works v. Industrial Accident Commission*, 210 Pac. 411.

THE Supreme Court of Wisconsin, February 6, 1923, held that a school district which had established and maintained a manual training department in its schools can not be held liable for the injuries sustained by a pupil while attending the department from certain saws unguarded with proper safety devices and safeguards, although such guards are required by statute. "Manual training is now a constituent part of our system of education, and instruction in that branch involves the use of mechanical devices. But whether or not the doctrine of the non-liability of a school district should be changed is a matter which rests with the wisdom of the legislature, and not with the courts, and until such change is affected by a proper statute, we must consider it our duty to adhere to our former decisions and to persevere in favor of the non-liability doctrine."—*Sullivan School District No. 1 of City of Tench*—191 N.W. 1020.

THE contraction of typhoid fever by a hotel waitress from drinking water furnished by the hotel is an "accident" within the Workmen's Compensation Act according to the Supreme Court of Michigan in a decision rendered April 27, 1923.

It seems that the city supply of water in Saginaw was thought to be impure. In order to get a better quality the hotel put down an artesian well and piped the water throughout the hotel. January 15, 1922 the waitress entered the employ of the hotel and on February 25 became ill with typhoid. Later she made a claim for compensation before the Department of Labor and Industry. The court points out that "there could be no recovery for occupational diseases like lead poisoning, but it is evident that the occupation of head waitress in a hotel does not subject one to the liability of acquiring an occupational disease, and that typhoid fever is not an occupational disease." The court asks eloquently, "How could Miss Frankamp foresee that if she drank the water supplied to her in the hotel, she would be attacked with 'typhoid fever'?"

The evidence presented to the court certainly showed the probable origin of infection. The question turns upon the legal distinction between occupational disease and industrial accident. The illness, if directly traceable to employment as it was, should have been compensated undoubtedly but also if we confuse the medical findings, etiology and terminology, with legal technicalities the resulting conclusions may or may not be satisfactory. The supplying of water to the hotel employees and occupants was not an accident, the source of supply after the establishment of the well was constant. It was known that the city water supply was probably contaminated. It might reasonably follow that the artesian supply would bear analysis *before* the same was utilized in the hotel. After the plaintiff was taken ill such a sample of the water was sent to Lansing for analysis and was shown to be contaminated.

The question is raised as to whether logically there is any essential difference in the supply of water, air, heat, light, illumination, etc., from the point of view of the workmen. Should, for example, the inhaling of dust laden or impure air, the strain from defective lighting with their various end results be distinguished from the drinking of water demonstrably contaminated and the source of infection? The so-called "unforeseeability" it would seem was

as evident in one case as in another.—*Frankamp v. Fordney Hotel 193 N. W. 204.*

WHERE an employee broke his finger in the course of his employment and died from a dilation of the heart caused by an anesthetic administered to him for the purpose of performing a surgical operation on the finger, the Supreme Court of Pennsylvania, March 19, 1923, held that the causal connection between the original violence and the subsequent death was sufficient to authorize an award of compensation.—*Hornitz v. Philadelphia & Reading Coal & Iron Co. 120 Atl. 662.*

THE Supreme Court of Utah April 10, 1923 held that a strong and able-bodied workman who was wheeling a cart weighing over 1,200 pounds up an incline and who suffered a mitral lesion during his endeavor to prevent the cart from backing down the incline when it slipped was entitled to compensation for an injury by accident arising out of his employment. The question raised was whether the Commission exceeded its jurisdiction in making its decision. The Court held that the Commission did not exceed its jurisdiction.—*Cherdron Construction Co. v. Simpkins 214 Pac. 593.*

THE furnishing of decomposed and contaminated meat by an employer with the meals which it served to its employees at its boarding house, which board was charged to the employees by deduction from their wages, has been held by the Supreme Court of Washington, April 3, 1923, to be a sale of food within the statute forbidding the sale of adulterated or mishandled food or drugs. Adulterated food is therefore defined as including filthy, decomposed, or putrid animal or vegetable substances; or any portion of an animal unfit for food.—*State v. Grays Harbor Commercial Co. 214 Pac. 13.*

THE Supreme Court of Washington October 6, 1922, awarded compensation to a shingle sawyer who was transferring heavy blocks from a platform to a carrier and who sustained a rupture of a previously diseased appendix due to the pressure of the blocks when lifted as constituting an "injury."—*Shadbolt v. Department of Labor and Industry of Washington, 209 Pac. 683.*

A WATCHMAN who rode a bicycle in making his rounds was injured by falling from his bicycle, and in attempting to save himself by catching at a pile of lumber suffered an accidental injury. The Supreme Court of Michigan, June 5, 1922 upheld the finding of the Department of Labor and Industry, that the disability was due to an accident arising out of and in the course of his employment and not the disease with which he was afflicted. "The fact that the plaintiff was predisposed because of disease to this form of attack (to partial paralysis from a hemorrhage in his brain) has nothing to do with the question of what befell him, is to be regarded as an accident."

The award of the Commission was affirmed.—*Carvey v. W. D. Young & Co., 188 N.W. 393.*

THE Supreme Court of Kansas, October 8, 1922, held that a workman who was employed to haul ashes at a smelting plant, who became overheated at his task and drank ice water, which caused a congestion of the vascular system from which he died within one hour, was compensable as death caused by an accident arising out of and in the course of employment.

In the opinion of the Court "Here there was the added factor of the overheating, traceable to the workman's task of shoveling warm ashes on that unusually warm afternoon, and this brought about the condition which gave such sudden and fatal effect to the drinking of the ice water." This justified the holding that the incident was within the Workmen's Compensation Act.—*Gililand v. Edgar Zinc Company, 209 Pac. 658.*

Difficulties in Typhoid Testing

Difficulties with the Widal test have been reported by Pijper (*S. African Med. Rec., 1923, xxi, pp. 51-74*). In sixty-one cases in which verified typhoid bacilli were isolated from the blood, 117 samples were obtained. Forty-four of these gave a negative Widal. Testing appears to have been carried out very carefully.

Using a simple saline suspension of bacteria as antigen the author got 96 per cent positive results by complement fixation in the same series which gave only 62 per cent positive results with the Widal test. There were no positives in 60 control tests. (*Lancet, May 5, 1923, 5201, p. 913*).

SANITARY AND HYGIENIC ADVANCE

Dermatitis in Food Industries

Dermatitis occurring in a small group of workers employed in sorting out and packing dried foods is discussed by Russ (*Lancet*, Jan. 13, 1923, 5185, p. 77).

The irritation occurred on the palmar surface of the forearms and was of an uncommon type. Cultures were made, resulting in a fine, filamentous growth (resembling a mold) after fourteen days' incubation, inoculation with which produced a vesicular eruption, highly irritating and productive of a strong burning feeling. Cultures submitted to Prof. Massee were pronounced to be of a typical *Cercosporiella* form. This particular species has not previously been described and for it Massee has suggested the name *Cercosporiella vexans*.

No previous infection of the kind had occurred at the firm, which was long established, and antiseptic preventive measures controlled the trouble. Previously no germicides had been used in the lavatories, and only one nail brush had been in common use. The benches on which the workers sat had been covered with the sacking which had held the foods.

Cultivation from the foods, from decayed specimens, and from the sacks failed to reveal the source of the organisms. It was considered that the mold which caused the trouble had originated in the sacking, which came from the East.

Efficiency of Linen Weavers

The ventilation of linen weaving sheds is greatly complicated by the fact that the production of fine linen cloth is facilitated by a fairly high temperature and high degree of humidity. Weston (*J. Indust. Hyg.*, June, 1923, v. 2, p. 41) finds that "as a working maximum, a wet bulb temperature of 70 degrees F. should insure maximum production consistent with the comfort and health of the workers."

World's Largest Filtration Plant

"Detroit's new water purification works will be the largest single rapid sand filtration plant in the world," says Leisen (*Eng. News-Record*, May

17, 1923, 90, 20, p. 860). The plans provide for eighty 4 m.g.d. units, and in their entirety for 320-360 m.g.d., with facilities for meeting peak loads of short duration up to 400 m.g.d. Owing to the unstable nature of the soil every portion of the filter structure, including the filtered water reservoir, is being constructed on a pile foundation. This foundation added over a million and a half to the cost which exclusive of the pumping station approximates \$4,480,000.

Mosquito Identification Guide

A guide to mosquito identification for field workers engaged in malaria control in the United States has been prepared by Komp (*Pub. Health Rep.*, May 18, 1923, 38, 20, p. 1061). It contains brief descriptions of the form and markings of larvae, pupae, and adults found in this country together with keys for the identification of female adults and full grown larvae. Excellent illustrations accompany the text. It should prove very useful to the health worker whose knowledge of entomology is limited.

Value of Egg Yolk in Rickets

Hess has concluded that "egg yolks possess marked anti-rachitic properties for animals and for infants, far more than any other natural food stuff. This food is very well tolerated and can be recommended as a supplement to the dietary for even very young infants, much as orange juice is used to protect against scurvy. The yolk has also curative value but definitely less than cod liver oil" (*Proc. Soc. Exper. Biol. & Med.*, 1923, xx, 7, p. 369.)

Minimizing Traffic Accidents

Representatives of the manufacturers and users of traffic signals, of federal, and state governmental departments, of associations interested in the prevention of traffic accidents, and of the general public are at work, under the direction of the American Engineering Standards Committee, preparing a national code on the proper colors for traffic signals, which is expected not only to eliminate many of the irritations of motorists and the

operators of steam and electric railways, but also cut down the annual loss of life through traffic accidents. (*Science*, May 11, 1923, lvii, 1480, p. 550.)

Guyer on Hereditary Immunity

Guyer has stated that by inoculating successive generations of rabbits with typhoid bacteria he was able to develop an immunity so that rabbits of the fourth or fifth generation were able to overcome from thirty to forty times as many bacteria as the original rabbits could stand.

Prof. Guyer says, "the young may not only acquire immunity reactions from their mothers but may retain them sufficiently to transmit them in a measurable degree, without further immunization, to their offspring." (*Science*, May 11, 1923, lvii, 1480, p. x.)

Protection of Health in Boarding Schools

In a paper on the Protection and Development of Health in Boarding Schools (*J. A. M. A.*, May 5, 1923, 80, 18, p. 1310) Haven Emerson reports that in a privately endowed boarding school of the highest type with a uniform enrollment of four hundred boys between the ages of 12 and 18, an average of 3.55 per cent of all possible days of school attendance were lost on account of sickness during a three year period (1919-1920). Of all the days lost 74.5 per cent were lost on account of infections acquired through the respiratory tract.

The author lists the objectives to be attained by health supervision, the elements in a survey, the elements in a plan for health protection, and stresses the valuable contributions that can be made by those having an opportunity to conduct research in such controllable groups.

Two of the items listed in the proposed plan for health protection are, daily morning observation of every pupil by some competent person who knows how each one ought to look in health and daily inspection of the entire school by a physician for two weeks after holidays, or of individuals after absence from school for over night at any time.

The cost of infant weighing machines of sufficient accuracy for test feeding is prohibitive for many householders with the result that breast feeding may be discontinued when it could well be supplemented. The renting of such machines by a London firm has proved a great convenience. (*Lancet*, April 28, 1923, 5200, p. 880.)

Resistance and Diet

There has been but little experimental evidence to support the general opinion that a poor diet lowered resistance. Smith and Wason in a study of the serological factors of natural resistance in animals on a deficient diet (*J. Immunol.*, May 1923, viii, 3, p. 195) used rats fed on a ricket-producing diet.

They find that the "outstanding feature is a marked difference in the bactericidal titer; values for the most active sera among the rachitic rats being well below the lowest values secured for the normal animals.

"The complement titrations show but little variation, and there appears to be but little if any correlation between complementary activity and the bactericidal values of the serum."

Use of Fish in Larvae Control

Monroe states (*Am. J. Trop. Med.*, Jan. 1923, iii, 1, p. 21) that one may often find in the family water barrel innumerable larvae of *Aedes calopus* even though the barrel also contains a pair of fish. The average larvae consumption for the class of fish in general use for the purpose of mosquito control is about 150 per day. When conditions are as above it is not because the fish refuse to eat, but because of a mathematical factor (explained in the paper) that places the fish at a great disadvantage in the presence of a number of larvae beyond the limit of their possibilities to consume.

Study the pH of Natural Waters

Atkins has studied the pH of natural waters (*J. State Med.*, May 1923, xxi, 5, p. 223). They vary from pH 5.0, the reaction found with bog water, to pH 8.3 for a stream saturated with calcium bicarbonate supplies are normally between pH 6.8 and pH 8.0. With the exception of the extremes it would seem that natural waters are at a pH value favorable to the continued existence of *Vibrio comma* and the bacteria of the typhoid group. The author makes the suggestion that water may be made safe for drinking by rendering it as alkaline as pH 10.5 or thereabouts by adding ash derived from vegetable matter which is rich in the carbonates of potassium and sodium.

Training of Nursing Attendants

The Household Nursing Association of Boston, says Osgood, (*Boston M. & S. J.*, May 10, 1923, 188, 19, p. 732) has recently lengthened the preliminary

training for nursing attendants from six to nine months, in accordance with the recommendations of the Rockefeller Committee on Nursing Education. Before receiving their diplomas the attendants are required to work six additional months on private cases under the supervision of the association's full trained nurses.

This type of worker has been found very useful in bridging the gap between trained care of the private nurse and the care of visiting nurses. The work of the association receives the editorial commendation of the *Boston Medical & Surgical Journal*.

Reliable Disinfectant for Soda Waters Tumblers

Sayre reports (*Kansas State Board of Health, Bulletin No. 4, April 1923*) on a simplified formula for a reliable disinfectant bath for soda water tumblers. The simplified formula is as follows:

	Avoirdupois.	Metric.
Chlorinated lime.....	12 oz.	340 gms.
Sodium carbonate (U. S. P.)....	8¼ oz., 66 grains.	238 gms.

Triturate the chlorinated lime to a smooth paste in a mortar with 20 fl. oz. (600 c.c.) of water. Transfer the paste to a gallon bottle or flask, washing it from mortar with 14 fl. oz. (420 c.c.) of water. Dissolve the sodium carbonate in 17 fl. oz. (510 c.c.) of hot water and add the solution to the bottle containing the chlorinated lime. Shake thoroughly. If mixture becomes gelatinous, warm gently, strain through wet muslin until the liquid becomes clear. Wash with successive portions of warm water to make a total of 50 fl. oz. (1,500 c.c.).

	Apothecary's measure.	Metric.
Hydrochloric acid (U. S. P.).....	3 fl. oz.	90 cc.
Water.....	29 fl. oz.	870 cc.

Mix and stir well.

Solution No. 1.—Use 4 fl. oz. (120 c.c.) to each 3 gallons (11,352 c.c.), or 1 1/3 fl. oz. (40 c.c.) to one gallon (3,784 c.c.) of water.

Solution No. 2.—Use 1 fl. oz. (30 c.c.) of this solution to each gallon (3,784 c.c.) of the disinfectant bath in its final preparation for use.

Then mix solutions No. 1 and No. 2 in the above proportions.

A similar product prepared from a previously published formula (*Bulletin, May 1920*) has been used with great satisfaction for a number of years. The newer formula has been supplied at the request of druggists for a simpler method of preparation.

Facts relative to the present expenditures for the various phases of health work may be ascertained by consulting that section of the Report of the Committee on Municipal Health Department Practice dealing with Expenditures of Health Departments. (*Am. J. Pub. Health, June 1923, xiii, 6, p. 441.*)

Decline in Infant Mortality

The decline in the infant mortality in the U. S. Birth Registration Area from 1915 to 1921 has been studied by Woodbury (*Am. J. Pub. Health, May, 1923, xiii, 2, p. 377*). The authors statistical analysis shows the following decreases in this period:

Disease Condition	Percentage of Decrease
Gastric and intestinal diseases.....	34.6
Respiratory diseases.....	32.2
Malformations.....	10.0
Deaths in early infancy.....	10.8
Other communicable diseases.....	21.7
External causes.....	20.2
All other causes.....	23.5

Schick Test on School Children

Zinger reports (*Am. Dis. Child.*, May, 1923, 25, 5, p. 392) with many tables the results of Schick tests performed on more than one hundred and fifty thousand school children in Manhattan and the Bronx. The tables give percentages by type of reactions, by each year of age and by schools. The article gives a detailed picture of the present status of what is probably one of the most extensive public health activities ever undertaken by any municipality.

Concurrent Disinfection in Germany

A decree by the Prussian Ministry of Health formulates a new policy regarding disinfection following infectious diseases. In essence this provides for concurrent rather than terminal disinfection and has preference only to the contagious diseases specified in the Act of August 28, 1905, including tuberculosis, diphtheria, acute meningitis, scarlet fever, typhoid fever, dysentery, and trachoma. The Act of 1900 including plague, cholera, typhus, and smallpox remains in force with all provisions. (*Lancet, May 12, 1923, 5202, p. 965.*)

Test for Paris Milk Supply

Figures from the veterinary service of Paris and the Department of the Seine according to a Paris Correspondent (*J. A. M. A., April 28, 1923, 80, 17, p. 1255*) show that of 15,637 cows given the tuberculin test in recent years, 34.35 per cent gave a positive reaction.

Of fifty-nine specimens of milk examined:

75% contained over 10,000 bacteria per c. c.	
62% contained 50,000 bacteria per c. c.	
52% contained 100,000 bacteria per c. c.	
21% contained 500,000 bacteria per c. c.	
7% contained 1,000,000 bacteria per c. c.	

Excellence in Health Work to be Recognized

Announcement is made from the American Public Health Association that a series of awards is to be made by the association on the basis of attainment and advancement of community health service. Rating will be made on the basis of standards evolved by the Committee on Municipal Health Department Practice from a study of the practices of eighty-three of the largest cities of the United States. The first series of awards will be made to cities of a population of one hundred thousand or more which show the most nearly adequate community health service as of January, 1924. Similar awards will be made later on the basis of progress since January, 1924. Dr. C.-E. A. Winslow is chairman of the committee, which includes such distinguished sanitarians as Dr. C. V. Chapin, Providence, R. I.; Dr. Haven Emerson, Columbia University, New York City; Dr. Donald B. Armstrong, National Health Council, New York City; Professors Freeman and Frost, Johns Hopkins University, Baltimore, Md.; and Dr. L. R. Thompson of the United States Public Health Service.

Surgeon General Cumming of the United States Public Health Service has agreed to establish an office of administrative health practice under the direction of Surgeon Paul Preble to work in cooperation with the American Public Health Association.

Recreation Congress to Meet in Springfield, Illinois

The Recreation Congress will be held this year in Springfield, Ill., October 8 to 12, the sessions to be held in the state capitol building. Important among the topics to be discussed are athletics for girls and women, the national physical fitness campaign, adult recreation, recreation for colored people, and summer camps. Preliminary report will be made to the Playground and Recreation on the occasion of this meeting of the study of summer camps which is being conducted by L. H. Wier, J. W. Coverdale, secretary of the American Farm Bureau Federation, will address the congress on play in the small town and open country, and important hearings of recreation in industry will be developed by James Mullenbach, of Hart, Schaffner & Marx. Between eight and nine hundred delegates are expected to attend the meeting.

Protection Against Diphtheria

In guinea-pigs experimentally infected with diphtheria, Mackie has found (*J. Immunol., Jan., 1923, viii, 1, p. 35*) that normal serum (horse, ox, sheep, cat, rabbit, human) injected subcutaneously at the time of inoculation exerts a definite protective action. Two c.c. of normal horse serum may protect in this way against 12 m.l.d. of a *Corynebact. diphtheriae* culture. No protective action was found if the injection was delayed for two hours after the inoculation.

Hookworm Disease in Australia

Hookworm disease is an occupational disease related to two groups of Australian mines, reports Sawyer (*Am. J. Trop. Med., May, 1923, iii, 3, p. 159*). It is, however, absent from most of the mines, a few of which appear to be protected by the salinity of their waters.

Hookworm infestation cannot be regarded as an occupational disease related to the tilling of the soil in Australia. In rural districts it is largely limited to areas having over 40 inches of annual rainfall and involves chiefly the school-children.

American Public Health Association Meets in Boston

The American Public Health Association will hold its fifty-second Annual Meeting in Boston from October 8 to 11, 1923. Health Sunday will be observed in Boston churches on October 7. Registration will take place at the Copley Plaza Hotel, and meetings of the various sections of the association will be held in the Library and other near-by buildings.

Among the distinguished speakers who will address the General Session of the Association is Sir Thomas Oliver of Newcastle-on-Tyne, a noted specialist in industrial hygiene. Physicians in industry will also be particularly interested in the industrial hygiene sessions, at which several excellent papers on various problems in industrial hygiene are assured.

One of the most interesting sessions will be on Tuesday morning, when Professor C.-E. A. Winslow will present the Report on Municipal Health Department Practice, and announcements will be made concerning the award to cities for advancement in community service. The problems of the health officer of the smaller cities will receive attention at a round table being arranged by Dr. George C. Ruhland of Milwaukee.

The address of Dr. J. W. S. McCullough, chairman of the Public Health Administration Section, will deal with the whole subject of part-time versus full-time health administration. On Thursday morning a special session on Epidemiology is planned at which, among other speakers, Dr. Norman V. Lothian will describe the service of epidemiological intelligence and public health statistics of the League of Nations.

Dr. George E. Vincent, president of the Rockefeller Foundation, will address the second general session.

In previous years the clinic on printed matter has been largely attended, and this feature of the program will be repeated this year in the Section on Public Health Education and Publicity. The various other forms of communicating health knowledge to the public will also be discussed separately, and a special luncheon on motion pictures is being arranged.

The health exposition customarily held during the annual meeting will be held this year in connection with the Boston Health Show at Mechanics Hall, with the exception of the exhibit of the Book Department of the Association, which will be at the convention headquarters in the Copley Plaza Hotel.

Scientific trips to points of interest around Boston are being arranged, and the meeting will close with a boat ride down Boston Harbor.

Action of Vitamins

The mode of action of vitamins has been investigated by Cramer (*Lancet, May 26, 1923, 5204, p. 1016*) who states that they may be looked upon as "food hormones." Water soluble vitamin B is thought to stimulate the lymphoid tissue, while the fat soluble vitamin A has a stimulating effect on the intestinal mucous membrane, and also directly or indirectly on the formation of blood platelets.

Author's Correction

Dr. I. S. Falk wishes to correct an error in his paper "A Differential Analysis of the Reduction in the Death Rate" which appeared in the NATION'S HEALTH for July, 1923. On page 435 it will be noted that the cause of death titles 31-35 (inclusive) and 106 appear in both Groups I and III although they should have been listed only in Group I. This is due to an oversight and does not invalidate the data which were calculated without these duplications.

NEWS FROM THE FIELD

Children's Bureau Make Interesting Report

The Children's Bureau at Washington has made an arresting report of conditions in the beet fields of Michigan. It was found that many children as young as five and six were doing full-time work for the sugar companies. Housing conditions were deplorable, as many as ten persons were obliged to sleep in one ill-ventilated room. Some of the families were dwelling in caravan wagons; which offered such cramped quarters that as one child told the agent, the family "has to take turns going in as there isn't room for all of us at once."

Sanitation of Detroit's Swimming Pools

The epidemiologist of the Detroit Department of Health, George T. Palmer, reported in February that 15,000 people used the swimming pools of the city every week.

The results of bacteriological studies of seventeen pools for period from October to January, inclusive, may be summarized as follows:

Average of Monthly Median Total Counts (No. of bacteria per C. C.)	
Pools	
6	under 1000
4	1000-5000
7	over 5000
Average of Monthly Colon Counts per 100 C. C.	
Pools	
4	under 1.5
4	1.5 - 3
9	Over 3

Pay for Government Employees Reclassified

The Enactment of the Sterling Reclassification of work and pay of civilian employees of the Government, during the last days of Congress represents the culmination of several years of often embittered discussion and exacting study of perplexing problems of vital import to thousands of men engaged in the professional and scientific service of the Government.

The act embraces substantially the report of the reclassification commission of 1920. The salary schedules do not become effective, however, until July, 1924, and includes employees only in the District of Columbia. Interest now is transferred to the administration of the law and centers in

the work of the personal classification board in the allocation of government employees especially professional, scientific and technical workers.

Good Books for Workers in Health Fields

A selected list of books on public health has been issued by the National Health Council under date of April 1, 1923. This bibliography is intended to give to sanitarians and others interested, much needed information as to the best books on the various phases of public health. The 175 books included are listed according to authors under fifteen headings: Administration and General Public Health, Cancer, Child and Maternal Hygiene, Communicable Diseases, Foods and Nutrition, Health Education, Industrial Hygiene, Laboratories, Mental Hygiene, Personal Hygiene, Public Health Nursing, Sanitary Engineering, School Hygiene, Social Hygiene, and Tuberculosis. The publisher, price, and year the book was issued are also given and a list of public health magazines is appended. Single copies of the bibliography may be obtained from the National Health Council, 370 Seventh Avenue, New York City.

Roentgenology and Radium Therapy

The report of the committee of the American Roentgen Ray Society appointed to study the question of the danger from high tension shock and to formulate safety recommendations applicable to high voltage therapy is published in the March issue of the American Journal of Roentgenology and Radium Therapy. It is recommended that in view of the rapidly changing principles in the application of x-ray and in the manufacture of apparatus, that the investigating committee should be a standing committee to report on individual problems as they arise.

The National Narcotic Conference held in Washington May 4 asked that Federal control of the drug traffic be divorced from the prohibition bureau. The present appropriation of \$750,000 is declared entirely inadequate and the number of field agents should be

increased from 163 to five hundred. A world-wide agreement is held essential to effective control of the traffic.

"To Make Georgia a Better Place to Rear a Child"

Twenty-eight social service agencies and an advisory section of one hundred or more lay members, a budget of \$7,500 and a permanent secretary constitute the machinery recently set to work in Georgia "to make Georgia a better place to rear a child." Two study committees are at work, one on the codification of children's laws, and the other on the treatment and prevention of crime.

Census of North Carolina's Crippled Children

Seventy-nine counties reporting in a cripple census week held in North Carolina up to December 15 had accounted for nearly four thousand crippled children. On the basis of classifications made possible by the returns of the census corrective measures and vocational rehabilitation will be undertaken on a wide scale. Treatment will be instituted at the Orthopedic Hospital at Gastonia, local clinics will be provided for cases not requiring hospital care. The chief need is a convalescent vocational home.

India Makes Plans to Eradicate Plague

The public health commissioner of British India is reported in the New York Times as having announced a rise in mortality due to the plague which began last December and which up to March accounted for 36,900 deaths. The wholesale destruction of rats is recommended, and careful storage of grain products. Thus far an organized attempt to stamp out plague in India has not been made.

American Law Institute Receives Large Sum

The Carnegie Corporation has given a fund of \$1,075,000 to the American Law Institute recently organized for the purpose of restating and simplifying the law. The work to be undertaken in the codification of the common law is the most ambitious program ever assumed by the legal profession in any country. The fact that something like ten thousand new laws and as many or more new interpretations have become a part of court records during the past five years indicates the necessity which urges the leading judges and lawyers to the task.

Joint Committee for Prison Investigation

New Jersey investigators who have just completed a survey of penal institutions make recommendations for prison reforms which have to do chiefly with administrative details. It is suggested that prisons be administered by a joint committee of not more than six members, this committee to act as a clearing house for information and recommendations of sub-committees whose duties would be concerned with the specific problems involved. Most of the inefficiencies responsible for present prison conditions are chargeable, says the report, to the lack of time for the prison board as a whole to study carefully and fully understand all the complicated questions which come before it.

A portion of the report having to do with prison health was printed in the April issue of THE NATION'S HEALTH.

Another recommendation is that some form of supervised physical exercises and recreation should be provided for idle prisoners. Further development of the educational system of the prison, with particular emphasis upon Americanization and library work; utilization of the repair shops for purposes of industrial instruction, and the establishment of a barber's school are also recommended.

Investigations on Household Refrigeration

Dr. M. E. Pennington, Chicago, with the active cooperation of home economics educators throughout the country, will conduct a series of important investigations on problems connected with household refrigeration. Reports of findings will be issued from time to time and the Bureau will serve consultants on individual problems. The project is conducted under the auspices of the National Association of Ice Industries.

Hardness of Public Water Supplies

Analysis of water from the public supplies of more than three hundred large cities of the United States, as reported by W. D. Collins before the Philadelphia Section of the American Chemical Society, shows that the average hardness of the surface water supplies is 85 and the ground water supplies is 226. Surface supplies are used by thirty-four of the thirty-nine million inhabitants of these cities.

If the hardness of a water, expressed in the ordinary way as equivalent calcium carbonate, is less than 50 parts per million, comparatively few persons notice the hardness in ordinary use. Such water may be called soft.

If the hardness is between 50 and 100 parts per million, most persons would notice it but would not be greatly troubled by it. Practically all industrial plants, where hardness is detrimental, would under such conditions find it profitable to soften the water. Water between 100 and 200 parts per million is hard without any qualification. Treatment is profitable for household use and for nearly every use where hardness affects the value of a water. Very few waters for public use have hardness over 400 parts per million.

The hardness of water from Lake Michigan used in Chicago is about 130 parts per million. The average for the states along the Atlantic Coast and the east coast of the Gulf of Mexico is less than 55 parts per million. The average of the four large supplies of Florida is 296. Public supplies in the central states are all hard or very hard, and a number of them are softened in connection with their filtration plants.

Problems in Industrial Pension Systems

Those who urge industrial pension systems as the one effectual means of ameliorating the condition of workers grown old in service find an interesting problem in the dilemma of participants in the pension fund of Morris & Co., recently absorbed by Armour & Co. The Morris pension fund was established in 1909. Under the new Armour régime Morris employees who were more than forty-five years of age in 1909 are not eligible for participation. The contributions of individuals in this class will be returned with interest. Some five or six hundred employees who have spent most of their lives with that organization thus find themselves in their uncertain years with no protective agreement in the Morris-Armour transfer to cover their rights. A suit being brought by four hundred former Morris employees against Armour & Co. on this point will be watched with interest.

Iowa and Oklahoma are among the recent states whose legislatures have accepted the provisions of the Shepard-Towner law for work in maternal and infant welfare.

Surveys Essential for Rural Cooperation

A study of cooperative laundries in the United States is reported in the May issue of the *Journal of Home Economics* by Ruth Van Deman. Of the five cooperative laundries in the United States only two have been running long enough to be considered on a stable financial basis. The conclusion is reached that the rural community is the logical field. The article delineates the requirements of the preliminary survey essential to establishing a successful community enterprise of this kind.

Alternate Working Periods for School Children

The Cape May, N. J., school board has organized a council of athletics, consisting of two members of the board, two of the faculty, two of the alumni association, five students, and the superintendent of schools.

Twenty-five states have adopted laws requiring part-time or continuation schools and it is predicted that practically every industrial commonwealth in the country will take steps in this direction during the next five years. Baltimore, Md., has evolved a "two-boy work-school" program by which two boys or two girls will be employed on a single job and while one boy or girl works for a period of one or two weeks, the other one will be in school. At the end of the period they change places. The money earned during the period of work will be sufficient to keep the child in school during the alternate periods. The program includes a scheme of continuous counsel with the children and such health supervision and inspection of working conditions as will safeguard the present and future usefulness of the youthful workers.

Canadian Sanitation

The Federal Department of Health of Canada has just issued a brochure on Sanitation dealing with the subject of sewage treatment for isolated houses and small institutions where municipal sewage system is not available. The urge for such information has been so insistent that, having in mind the health and welfare of the people, it was considered advisable to have the subject dealt with in a scientific and thoroughly practical manner. The publication is generously illustrated, emphasizing the application of the advice given.

This publication can be obtained free on request from the Deputy Minister, Department of Health, Ottawa.

Methods of Handling Various Materials in Industry

Safe Practices Pamphlet No. 54 entitled "Handling Material" has just been published by the National Safety Council, 168 North Michigan Avenue, Chicago. Handling material is generally recognized as one of the greatest safety problems in industry and according to state reports handling material by hand causes more accidents than all machinery. The pamphlet is divided into the following main divisions: Power Trucks, Hand Trucks, Piling Material, Handling by Hand and Safe Habits of Work, each of which is again subdivided into paragraphs dealing with the different types of equipment used and the different methods employed in handling various types of material. The pamphlet is freely illustrated with photographs and diagrams. A large number of industries are covered and owing to the fact that handling material is common to every industry, the pamphlet has an unusually wide range of usefulness. The experience of many members of the National Safety Council was contributed in the preparation of the pamphlet and the assistance of a committee of seventy-five safety engineers was employed in editing and revising the material.

Dispensary and Out-Patient Work of Hospitals

Conferences intended especially for persons engaged in dispensaries and out-patient departments of hospitals have been arranged by the United Hospital Fund of New York City to be held at the New York Academy of Medicine. The subjects announced for discussion include the admission of patients, records and statistics, cooperation between dispensaries and other agencies, clinic management, and follow-up work.

State Aid for New York Special Classes

The Antin-Cole bill recently passed in New York provides state aid for teachers of special classes of backward children throughout the state. The development of adequate provision for special classes makes it possible for the first time for the mental deficiency program to begin its efforts in childhood, the period when such measures may be expected to reach their fullest possibilities. The Committee on Mental Hygiene of the State Charities Aid Association cooperated with the Department of Education in

introducing the measure and in organizing state wide support for it.

Board of Education not Responsible for Accidents

Decision has been rendered in favor of the board of education of the city of Fargo, N. D., that in providing playground apparatus as authorized by law for the health and physical education of pupils, the board acts purely in a governmental capacity and is not subject to suit, either in an action for damages or otherwise for the death or injury of a pupil when struck by heavy apparatus in operation on the school grounds.

The annual meeting of the Home Economics Association was held in Chicago July 30 to August 3. The program announced showed seventy-two names on the program, fifty-five of them being home economics people in active positions in home economics organizations, and seventeen men and women in related fields. Hotel headquarters were at The Windermere East.

Ill Health a Factor in Mothers' Pensions

A study of 53 fatherless families in Dallas County, Texas, conducted by the Civic Federation of Dallas, with a view to determining the value of the local system of widows' pensions shows that in 34, or 66 per cent, of the families studied, either the mother or children or both were in ill health. In 9, or 17 per cent of the families, both mother and children were ill. "Ill health is a serious factor in the economic life of the struggling family."

Medical Society Supports Georgia Clinics

The Medical Association of Georgia expects to undertake a state wide campaign for the control of tuberculosis, to hold clinics, and to teach physicians the methods of early diagnosis. They expect also to offer concrete help to county and state authorities in the campaign against malaria and hookworm.

Hospital Service in New York City

William Fellowes Morgan, president of the United Hospital Fund, reports that 201,271 patients were cared for in the fifty-eight hospitals of the fund last year. This is an increase of 5,990 over the previous year. Forty-seven of the hospitals are in New York and eleven in Brooklyn. The pa-

tients comprise medical, surgical and accident cases and all classes of ailments and diseases.

St. Louis Repeats Free Clinic for Crippled Children

The St. Louis Medical Society has elected to repeat the survey made in 1922 of crippled children in order to ascertain how many of these children are not being treated because of inability to pay. Permits will be issued to such children to admit them to a three day clinic to be held in their interest at the offices of the medical society in St. Louis.

Rural Communities More Susceptible to Diphtheria

In New England, at least, the susceptibility to diphtheria is higher among persons living in sparsely settled or rural regions than it is among those living in cities; and it is much higher among the well-to-do than among the poor, and among the native born than among the foreign born. Such are the conclusions reached by Dr. C. W. Kidder, of the U. S. Public Health Service, after an investigation, recently completed, in the Eighth Sanitary District of Vermont, which has a population of 35,000.

The Schick test was administered to a little more than 2,000 teachers and school children whose parents requested it. Of these about 1,500 were found to be susceptible to the disease; and their immunization with toxin-antitoxin was at once begun.

Course in Physiotherapy to be Open to Women

The next course of instruction in physiotherapy to be given at the Walter Reed General Hospital, Washington, will begin Oct. 5, 1923, and continue four months. It is open to women who have had at least two years' training in an approved school of physical education. For information, apply to the commanding officer, Walter Reed General Hospital, Washington.

The New York State Department of Health has issued an enjoinment on the method of the city of Watervliet which requires every person or corporation selling milk from a wagon or vehicle to expose a metal plate denoting the grade of milk which is being sold. The plates read: "Health Department-Grade A, Raw," "Health Department-Grade B, Pasteurized," etc. The plates are placed upon the vehicle under the direction of the health commissioner.

Chair of Nursing Endowed at Columbia

Through the foundation of a chair of nursing by Mrs. Helen Hartley Jenkins, of New York, Miss Adelaide Nutting has been made professor of nursing at Teachers' College, Columbia University. This is reported to be the first endowment of its kind.

Report on New York Farms and Markets

A report just issued by Berne A. Pyke, New York State Commissioner of Farms and Markets, states that the cost of maintenance of state institutions is greatly reduced by the forty farms operated for the purpose of supplying food consumed by the inmates. Only four out of forty failed to show a profit.

Increase in Crossing Accidents

If the crossing accident rate reported for June by the Pennsylvania Railroad during the month of June indicates the average trend throughout the country, the showing for the present summer will be the most deplorable yet recorded, says the *New York Times*. The month of June showed an increase of 115 per cent over the same month in 1921. Analysis of the causes emphasizes the dangers of recklessness on the part of drivers.

Workers More Efficient in Low Temperature

A report has been issued on "Variations in Efficiency in Cotton Weaving" by the Industrial Fatigue Research Board (England), based principally upon hourly output readings taken on about six hundred looms over a period of one year. The study indicates that a remarkably uniform standard of efficiency is maintained. Owing to the large mass of data involved, individual and chance variations are practically eliminated and the general tendencies indicated may therefore be regarded as real. Among the facts that may be so accepted is the statement that at temperatures over 75 degrees F., productive efficiency tends to fall owing to fatigue on the part of the workers; also, that during the periods of artificial lighting the output may be reduced by 5 per cent.

New York City has passed an ordinance requiring every physician and every dentist using x-ray machines to obtain a permit from the Department of Health.

Transitional Executive Committee Appointed

The English Ministry of Health, with the concurrence of the Rockefeller Foundation, has appointed a transitional executive committee: Mr. Neville Chamberlain, chairman, and Mr. L. G. Brock of the Ministry of Health, secretary, whose functions shall be to appoint a director to arrange for the amalgamation between the School of Hygiene and other institutions working in similar or closely related lines.

Extent of Insurance Legislation

That the public intends eventually to become the arbiter in the kind of insurance which shall be written in the country is evidenced from the fact that insurance bills, after but a few months of legislative activity, are reported by the *National Underwriter* to number 1,700. In 1921 the Insurance Federation of America was called upon to analyze, and interpret 1,471 bills introduced into forty-four legislatures.

Manitoba Co-ordinates Child Welfare Work

Manitoba's Child Welfare Act of 1922 coordinates the work defined by several previous laws which were administered through different departments. The Children's Act, the Infant's Act, and the Illegitimate Act are all repealed, leaving the written legislation affecting children in general consolidated in the new law and the Juvenile Delinquent's Act.

Manual Training Benefits Disabled Veterans

A statement recently issued by the U. S. Veterans' Hospital 81, in the Bronx, shows that of 1,619 patients admitted during the first year, 1,081 were discharged after periods of treatment varying from weeks to months. The high percentage of cures is attributed to the beneficial effects of training, academic and manual, fitted to the needs of the patient and occupying him at all times.

Yellow Fever Eradicated from Peru

Dr. Henry Hanson, director of public health for the republic of Peru announces that the country is free from yellow fever for the first time in history. Practically the whole western coast of the Western Hemisphere may be said to be free from this disease. (*J. A. M. A.*, Feb. 10, 1923, *lxxx*, 6, p. 412.)

Osteopaths Adopt Anti-Drug Pledge

The delegates of the twenty-seventh annual convention of the American Osteopathic Association, at their closing session in New York City, July 7, passed a resolution pledging themselves to "help all legitimate efforts for the suppression of traffic in narcotic drugs."

Workmen's Compensation Applied to Injured Children

The annual report of the Indiana Industrial Board shows that out of 859 cases of industrial accidents to minors investigated by the department, 418 involved children employed in violation of the law. The *American Labor Legislation Review* brings out the fact that in most states compensation laws have been so framed as not to apply to children illegally employed. In Wisconsin, Oregon and New York minors illegally employed are given a greater indemnity when injured than if legally employed. Under the Wisconsin law, treble damages are awarded.

Great Variations Registered in Death Rates from Heat

For no other single cause of death has there been such a marked variation in the death rate as that shown for heat and sunstroke, as recorded among industrial policy holders of the Metropolitan Life Insurance Company. In 1911, 6.7 policy holders per 100,000 died from effects of heat, while in 1920 only 0.2 per hundred thousand died from this cause. An even greater variation occurs for the United States Registration Area, 1900 to 1920, inclusive. Here the maximum heat fatality rate was 12.8 per hundred thousand in 1901, and the minimum 0.3 in 1920, that is, approximately forty-three times as many heat deaths the maximum as the minimum year. The lowest rates usually fall in the mountainous states and in Washington, Maine, and Vermont. Above-average rates are registered, not in the southern states, but particularly Michigan and Wisconsin of the East North Central states; all of the Middle Atlantic states (New York, New Jersey and Pennsylvania); Maryland in the South Atlantic region; and Missouri in the West North Central section.

The United Hospital Fund of New York City announces that it costs the city \$54,000,000 a year to be sick, and that 180,000 persons on an average are on the sick list each day.

HEALTH PUBLICATIONS REVIEWED

A Parody Sport Book

In "A Parody Sport Book," by Clifff Goldsmith, "Professor Happy" of the American Child Health Association, tells in words and pictures which will delight all boys, how to play the game of health from "Water Polo, the favorite Sport of Bathtub Bay" which "should be played every morning at son rise or daughter rise, as the case may be" to "Evening Baseball, the game that made the White Pajama Twirlers famous over night." To his convincingly sporty text, Professor Happy has added equally convincing illustrations by Clive Weed, and signed photographs of such sporting world heroes as Charles Paddock, Bobby Jones, and Bo McMillin, with a full page photograph and personally signed letter from Ty Cobb which introduce the *Sport Book*.

Health Education Division, American Child Health Association, New York City, 1923.

Exercise in Education and Medicine

The re-edition of R. Tait McKenzie of his text on "Exercise in Education and Medicine," permits the inclusion of recent developments and experiences gained through the war. The extension of physical education into schools, municipal playgrounds, and recreational centers; the wider use of athletic games; the devices for muscular re-education; the use of exercise in cardiac involvements are all matters of general and immediate concern. The book is carefully illustrated with an abundance of suggested exercises.

W. B. Saunders & Co., Philadelphia, 1923.

Employee Welfare Work

Defining welfare work as voluntary effort to improve living and working conditions of employees beyond the requirements of the law, L. A. Boettiger, professor of sociology, Lawrence College, has produced in "Employee Welfare Work" a comprehensive survey which sets forth the characteristics of typical organizations. The evolution of the several definite systems of welfare arrangements constitutes the historical background of the problems in this field that are engaging employers and managers today.

The incongruous medley of motives accounts for the confusion in terminology, and for the great variety of reactions to welfare work, but the movement is certainly to be credited with accumulating a constantly increasing body of knowledge respecting the application of psychology, physiology, business and community organization to the problems of production. Conditions are better, wages are better, and security is better because of them. Employers' welfare work is best interpreted "as the direction of inventive effort to the organization of personnel for productive purposes." Evidences of general interest are given in the growing movement for courses on personnel administration, industrial relations, employees' welfare work, and employment management in the leading universities and colleges, and in the testimony of financiers and great employers of labor that "welfare work pays."

The Ronald Press Company, New York City, 1923.

Diet and Race

A series of anthropological essays under the title, "Diet and Race" is brought out by F. P. Armitage, director of education for the city of Leicester. His thesis that the diet consumed over many generations influences racial characteristics is presented under three sections dealing with physique, color, and cranial form.

Physique is an individual characteristic, but the small stature of Chinese and Japanese, the sturdiness of the Englishman, the supple leanness of the Arab, he considers as due to the diet. The matter of color regarded as controlled by the amount of salt, is interesting but will not bear as close analysis as other parts of the book. The anatomical considerations as to classical form are not so fully worked out.

The book is a scholarly presentation that is frankly incomplete and the suggestion of the author is that the multitude of present day dietary studies be considered with reference to racial background as well as in regard to adequate nutrition of the individual.

Longmans, Green & Co., New York, 1922.

Children's Welfare Federation

A directory of the child welfare organizations of New York City has just been published by the Children's Welfare Federation. This directory gives information regarding all of the work which is carried on for the benefit of children.

Interesting statistics have been tabulated from the data collected for this directory:

There are 106 health stations operating clinics for babies, pre-school age children and school children who are suffering from malnutrition.

There are thirteen different divisions in the city departments whose functions include some type of child welfare work.

One hundred and twenty day nurseries offer protection for children whose mothers must go to work.

There are 132 institutions and homes ready to shelter children who must seek protection outside their own family circle.

Ninety-nine settlement houses are carrying on some kind of child welfare activity.

There are forty-eight shelters prepared to give temporary care to mothers, babies and children who are temporarily stranded.

One hundred and nineteen organizations are interested in providing vocational guidance and employment for boys and girls, and twenty-four organizations are granting scholarships.

There are in the vicinity of New York City, convalescent and fresh air homes operated by 110 different organizations. In some instances several homes are operated by one group.

Children's Welfare Federation, New York City, 1923.

The second report of the Association for the Prevention and Relief of Heart Disease is an account of not inconsiderable achievement. Particular interest centers in the establishment of forty-three out-patient classes devoted to the diagnosis and treatment of heart disease, the opening of convalescent homes to the heart cripple, the work in the public schools, and work connected with suitable industrial placement for those with damaged hearts.

Social Work in Hospitals

A revised edition has been issued of "Social Work in Hospitals; a Contribution to Progressive Medicine," a standard text on the history, development, and problems of hospital social work. It has a place in every library and in the hands of every public health worker in dispensaries, hospitals, and institutions.

Russell Sage Foundation, New York City, 1923.

Krause Issues Two Books on Tuberculosis

A number of illuminating essays and addresses by Dr. Allen K. Krause have been collected in two little volumes: "Environment and Resistance in Tuberculosis," and "Rest and Other Things," which will be hailed with appreciation by all students of tuberculosis.

The first volume contains an illuminating analysis of the factors at work in environment and resistance, emphasizing the complexity of the subject and suggesting particularly what might be called the chance factors of time and place as they control the result of the struggle between the invading germ and the resisting host. Dr. Krause's analysis of the subject of allergy and specific immunity will be found particularly helpful.

The second book deals more particularly with the practical problems of tuberculosis control emphasizing the author's view that "rest remains the sovereign remedy for tuberculosis." Artificial pneumothorax "the one effective weapon against advanced pulmonary tuberculosis which the period since the discovery of the tubercle bacillus has disclosed" is treated of course as a special case of rest. From the standpoint of infection Dr. Krause is a strong believer in outdoor indirect sputum infection as the most important quantitative factor and he dwells at length on the important theoretical results obtained by the use of the Pirquet test, which he classes with Laennec's promulgation of the unity of phthisis, Villemin's discovery of the infectiousness of tubercle and Koch's revelation of the bacillus as the quartet of really great episodes in the history of tuberculosis.

We can never have too much of Dr. Krause's clear vision and eloquent interpretation. It is to be hoped that his series of historical studies of tuberculosis published some years ago in the *Journal of the Outdoor Life* may soon be given to us in book form.

Williams & Wilkins Company, New York, 1923.

Merchant Seamen: Their Disease and Welfare Needs

The attempt to improve sanitation and working facilities on land have not been reflected in the control of ships according to this author. "The miserable pay, and that not due till the end of the voyage; the atrocious conditions of dirt and over crowding, with bad ventilation or none; the lack of facilities for keeping personally clean; the badly cooked, badly served, monotonous food; the hard work and long hours at sea—" are things we know comparatively little about. The book under the above caption by W. E. Home, is brief, concise and an extremely interesting and illuminating discussion of the employment conditions of sailors, the various merchant shipping bill requirements, including a notation of the accommodations on various boats, and the diseases of merchant seamen.

E. P. Dutton & Co., 1922.

Food for the Diabetic

Diabetes as a disease primarily characterized by the inability to handle certain foods, and one in which any successful management on the part of the physician presupposes an intelligent co-operation of the patient is amply discussed in a really valuable book under the above title by Mary Poscoe Huddleson. The book gives the elements of the dietetic treatment of the disease, supplies food tables with interchangeable quantities in units of household measurement, supplies suitable recipes and a constructive basis for menu planning that emphasizes possibilities of variation rather than the usual discouraging dead line of inhibitions. The book is of real value in the hands of the patient. Dr. Nellis F. Foster says in the introduction, it is the best manual he knows for the teaching of diabetics.

The Macmillan Company, New York, 1923.

Penal Discipline

In "Penal Discipline" Mary Gordon has brought out a very interesting narrative of her thirteen years of experience as a prison inspector, her study and analysis of the inmates and their difficulties and of administrative procedures and results, with suggested bases for reform. The distinction between prostitute and common prostitute, the discussion of prison types, and of the practice of tattooing are very unusual in the type of material presented.

E. P. Dutton & Co., New York City, 1922.

Employers' Associations in the United States

In "Employers' Organizations in the United States" Clarence E. Bonnett has made a study of typical associations and has drawn together the data relating to employer's groups which he defines as those composed of or fostered by employers and seeking to promote the employer's interests in labor matters and which of course may be formal or informal in character. The development, history and methods of these associations are more or less familiar to any student of labor problems, but a correlation and interpretation of their activities and interests is very valuable. The author has divided his subject matter into certain trade groups under the associations, in the iron and steel industry is discussed the Stove Founder's National Defense Association, the National Founder's Association, the National Metal Trade's Association and the National Erector's Association; the associations in the building industry, the printing industry and in fields of propaganda, legislation and litigation, such as the National Association of Manufacturers among others, their principles, purposes, propaganda, publications, methods, obligations, relations and funds are pointed out in each case. The author offers no immediate solution to our difficulties, shows the respective rise and fall of power; and shows further that the conflict should be controlled to avoid increasing intensity and complications.

The Macmillan Company, New York City, 1922.

The Transactions of the Thirteenth Annual Meeting of the American Child Hygiene Association, held in Washington, D. C., October 12 to 14, 1922, just issued, contains papers and discussions by authorities on maternity and child welfare which should prove a valuable reference in the health library. It is available through the Child Health Association, at their Washington office.

Public Health Bulletin No. 134 offers the suggestions of authorities on effective organization and conduct of nutrition work in rural districts, towns, and cities of 25,000 to 30,000. It is especially helpful in its plan for preliminary surveys to determine the size of the problem and to secure the co-operation of all local agencies both in conducting the work and in thorough-going follow-up work in the homes.

Education and Training for Social Work

This report on "Education and Training for Social Work," by James H. Tufts was undertaken under the auspices of the Russell Sage Foundation on the request of the Association of Training Schools for Professional Social Work. It is primarily a discussion of the problem of education and training divided into two parts, (1) the field of social work and (2) the problems of education and training. The purpose and organization of professional schools, their location, requirements, curriculum, methods of instruction and fellowships and scholarships are all treated very frankly and thoughtfully. The establishment of social work on a professional basis will increasingly require carefully selected personnel and the thoughtfully developed curriculum. The present book is a very valuable contribution in view of the general status of training school affairs.

Russell Sage Foundation, New York City, 1923.

The Meaning of Child Labor

The problems of adjustment and enforcement of child labor legislation keep the program of reform constantly before us. In his recent book on "The Meaning of Child Labor," Raymond G. Fuller declares that an adequate outline of child labor would include its direct effects on physical, mental and moral hazards; its indirect effects or the loss of school, play, etc.; substitutes for child labor such as play, schooling and suitable work; and methods of reform. The book though small and concise offers a very satisfactory statement of the general problem and its ramifications such as illiteracy, delinquency, truancy, etc.

McClurg, Chicago, 1922.

Women Workers and Society

A re-edition of "Women Workers and Society" has been brought out as a part of the National Social Science Series covers some of the problems involved in the employment and enfranchisement of women. The material included is not new but very clearly and simply put.

McClurg & Co., Chicago, 1923.

National Health Insurance in Great Britain

Henry J. Harris is responsible for the compilation of U. S. Department of Labor Bulletin No. 312 on "National Health Insurance in Great Britain, 1911 to 1921." The results

reported are principally valuable because they represent the most extensive health data on any population in the world, the number of insured persons in England and Wales in 1913 was about 11,211,000, representing about 85 per cent of the insured population studied in the report. A wide variety of industries, and also the professions, is represented. Recommendations are made for simplifying the administration and correcting abuses, but it is interesting to note that the consensus of opinion is that the actual working of the plan was of distinct value to the persons insured, and that all recommendations are in the direction of extending and improving the system. The present report is stated to bring down to date the history of health insurance in Great Britain first reported in the twenty-fourth annual report of the U. S. Commissioner of Labor in 1909.

Syllabus on Health for Newark Schools

The State of New Jersey, in its compulsory physical education statute, provides that parallel with the regular exercises and games, correction of posture and instruction in personal and community health and safety shall be a part of the course of study.

On October 28, 1920, the board of education of Newark adopted a "Syllabus on Health" with the result that the children are really being trained in health. David B. Corson, the superintendent of schools, states that "the work is having a marked effect on the appearance of the children and on the general state of their health."

This fifty-six page booklet gives directions for the organization and functioning of health leagues for the classrooms and a health association for the school. It outlines health instruction for grades one to six, inclusive. Starting with a tooth brush drill and song, morning hygiene drill, and Health Fairy Don'ts for the first and second grades the course is expanded till sixth year pupils are instructed in digestion, circulation, how disease germs spread, insect enemies, etc.

This instruction occupies fifteen minutes a day for ten weeks of each term.

Milk Consumption is Increasing

During the year 1921, the consumption of milk according to the United States government, increased from 43

to 49 gallons per person. This is an increase of approximately 14 per cent.

Back in the year 1890, according to the government statistics, the consumption of milk was only twenty-two gallons per person and in 1899, nine years later, the consumption of milk had increased only one gallon during the entire nine years, which is at the rate of only $\frac{1}{2}$ of 1 per cent per year.

1890.....	22 gal.
1899.....	23 gal.
1917.....	42.4 gal.
1920.....	43.0 gal.
1921.....	49.0 gal.

As the twentieth century was ushered in, the consumption of milk began to increase and it has been gaining momentum ever since.

The increase in milk consumption during the last two years is especially noteworthy.

Books Received

- THE TUBERCULOSIS WORKER. By J. Philip, P., Ph.D., pp. 314. Williams & Wilkins Company, Baltimore, 1923.
- MOONLIGHT SCHOOLS. By Cora Wilson Stewart, Chairman Literacy Commission & National Council of Education, pp. 194. E. P. Dutton & Company, New York, 1922.
- THE PROBLEM OF THE WORKING BOY. William McCormick, pp. 192. Fleming H. Revell Co., Chicago, Ill., 1923.
- THIRTEENTH ANNUAL MEETING AMERICAN CHILD HYGIENE ASSOCIATION. pp. 406. J. B. Lyon Company, Albany, N. Y., 1923.
- ELECTROTYPING IN ITS RELATION TO THE GRAPHIC ARTS. By Edward S. Pillsworth, pp. 121. The Macmillan Co., New York, 1923.
- EMPLOYEE WELFARE WORK. By Boettiger, pp. 301. The Ronald Press Co., N. Y., 1923.
- YOUTH AND THE RACE. By Sir James Marchant, K.B.E., Ltd., pp. 378. E. P. Dutton & Co., New York, 1923.
- THE STANDARD OF LIVING. By Newell Howland Comish, M.S., pp. 340. The Macmillan Company, New York, 1923.
- FOOD FOR THE DIABETIC. By Mary Pasco Huddeson, with an introduction by Nellis Barnes Foster, M.D., pp. 75. The Macmillan Company, 1923, New York.
- THE BLACK CANDLE. By Judge Emily E. Murphy, pp. 405. Thomas Allen, Toronto, 1922.
- EATING WITHOUT FEARS. By G. F. Scotson-Clark, pp. 145. Nicholas L. Brown, New York, 1923.
- FASTING AND UNDERNUTRITION. By Sergius Morgulis, pp. 107. E. P. Dutton & Company, New York, 1923.
- THE WORKER AND THE STATE, WAGES, HOURS, SAFETY AND HEALTH. By Frank Tillyard, M.A., M.Com., pp. 298. E. P. Dutton & Co., New York, 1923.
- STATISTICAL METHOD. By Truman L. Kelley, Ph.D., pp. 396. The Macmillan Company, New York, 1923.
- INTERNATIONAL CLINICS. By Leading Members of the Medical Profession Throughout the World, pp. 304. J. P. Lippincott Company, Philadelphia, 1923.
- ESSENTIALS OF ECONOMICS. By Fred Rogers Fairchild, Ph.D., pp. 543. American Book Co., New York City, 1923.
- CRIBBLES OF CHIME. By Joseph F. Fishman, pp. 299. Cosmopolis Press, New York City, N. Y., 1923.
- RIGHT FOOD THE RIGHT REMEDY. By Charles C. Froude, B.Sc., pp. 301. Brentano's, New York, 1923.
- OUTLINES OF MEDICAL ZOOLOGY. By Robert W. Hekner, William W. Cort and Francis M. Root, pp. 175. The Macmillan Company, New York, 1923.
- THE DOCTOR LOOKS AT LITERATURE, PSYCHOLOGICAL STUDIES OF LIFE AND LETTERS. By Joseph Collins, pp. 317. George H. Dornan Company, New York, 1923.
- FAITH AND HEALTH. The True Way of Attaining Health Through Faith, pp. 144. By Solomon Cohen, Theistic Publishing Co., Brooklyn, N. Y., 1923.

Health Examination Movement

(Continued from page 611)

were classed as capable of undergoing physical exercise, not involving strain, 31 to 32 per cent had marked physical disabilities, and 10 per cent were totally unfit.

The only instance where fairly extensive physical examinations of the general population have been made in an American community seems to have been in Framingham, Mass. In the year 1917, during the famous five year community health and tuberculosis demonstration conducted there under the direction of Dr. D. B. Armstrong, nearly five thousand citizens of the town were given medical examinations. Of the 4,473 looked over, 3,456, or 77 per cent, were recorded as "ill." Of those in industrial age groups, 71 per cent were classed as "ill." Of the defects recorded, 67 per cent were directly preventable, 22 per cent partially preventable, and the remainder, or 14 per cent, not preventable. The actual medical examination discovered just twelve times as much illness as had been brought out by a health census carried on by nurses and insurance agents who made a house to house canvass, asking as to known illness. It is interesting to consider in this connection that sickness surveys of 579,197 white employed persons conducted by the Metropolitan Life Insurance Company in several communities by the canvassing methods showed a disabling sick rate of 18.8 per 1,000. This rate may have been only one-twelfth of the real total.

When persons of very low economic status are given physical examinations, as would be expected, a greater number of defects are found than in the more favored classes. Data recently made available by the Committee on Dispensary Development of New York show that of 872 persons of low economic condition, about 70 per cent of whom were foreign born, who were examined, only 20 or about 2 per cent, could be regarded as normal, requiring no treatment or health direction. All of these people, consisting of 113 men, 413 women, and 346 children—42 per cent of them Italian—were examined at four health centers in lower New York City. Out of a total of 903 examinations made at various times, 603 or 62 per cent required medical treatment, 343 or 35.4 per cent needed hygienic advice but no treatment, and 24 or 2.4 per cent were normal.

So much for the necessity of health examinations. If anyone had any doubts at all, this summary of defects found by actual experience in examining apparently normal individuals should dispel them forever. The question arises, though, as to what are the results from health examinations. Here again, we have an answer. The Metropolitan Life Insurance Company since 1914 has offered to its policy holders free annual medical examinations and has contracted with the Life Extension Institute to make them. About a hundred thousand persons have been eligible to have these examinations and about seventy thousand have availed themselves of the opportunity. A careful survey of the records of 5,987 persons examined during the first two years (1914 and 1915) has been made and some remarkable facts brought out.

Whereas in five years 412 of these persons should have died according to the American Experience Table, actually only 217 died. In other words, the death rate of this selected group of nearly six thousand persons who thought enough of their physical welfare to have a health examination was only 53 per cent of the American Experience Table and 72 per cent of the American Men Table. In one year (1915-1916) those examined showed a mortality of only 39 per cent of the American Experience Table, while ordinary policy holders showed a rate of 70 per cent. The Metropolitan estimates that on this venture it returned the money invested in the examinations and made a profit of 200 per cent in five years. Naturally, an insurance company makes money when less than half of the expected mortality occurs in any group, for the whole business is scientifically figured out according to actual experience. This particular group represented mostly \$5,000 policy holders, that is, persons of fairly good economic status, with perhaps more than average intelligence, as they realized the benefits of health examinations. While they may have been a group slightly superior to the average, the data are, nevertheless, extremely significant, as showing the personal advantages of these health inventories. Another fact brought out was that unless the examinations were regularly repeated, the beneficial effect wore off in about five years.

Because the desirability of these health examinations is universally conceded, and because practically every official and voluntary health agency in the country has advocated them and still does so, the National Health Council voted early in 1922 to hold three health days. These were to have occurred in December and an attempt was to have been made to induce every one in the country to go to his or her physician on one of these days and be examined. On the advice of leaders in the medical profession, who believed that the doctors were not quite ready for such an intensive drive, this proposition was postponed. Instead, a whole year was determined upon as a better period with such concentrated campaign in any state as local conditions might warrant. The proposal was presented at the convention of the secretaries of state medical societies, who gave it their endorsement. The medical profession of the country has never yet failed to discharge a humanitarian responsibility which has been asked of it and it will do so in this instance.

With the slogan, "Have a Health Examination on Your Birthday" this campaign of the National Health Council began, appropriately enough, on the nation's birthday, July 4, 1923, and will last until July 4, 1924. The goal during this year is ten million examinations. The Conference of State and Provincial Health Authorities of North America has endorsed the movement and the National Health Council has invited each state health officer to take the initiative in forming state health examination committees. The response to this invitation has been most gratifying. The functions of these committees are to stimulate the formation of local committees and see that plenty of publicity is obtained. For several weeks before the campaign started the Council sent about a dozen news releases to two thousand of the leading newspapers of the country, who used practically all of them and furthermore, thought so well of the idea that many of them wrote unsolicited editorials favoring it. The United States Public Health Service also sent out from Washington a news release on the campaign which was very extensively used and even appeared in newspapers in London, England.

The National Health Council has

also developed publicity material, consisting of an eight page pamphlet for popular distribution; two posters, one in colors and one in black and white; a set of thirty colored lantern slides with a lecture outline, and a motion picture. The co-operation of the medical profession, which, naturally, is essential, having been secured, a committee of the American Medical Association has prepared standard forms for the use of physicians. A technical article on the subject by Dr. Haven Emerson has been reprinted from the *Journal of the American Medical Association*. An excellent popular article by the same author appeared in *Hygiea*. The National Health Library has prepared for the Council a bibliography of the principle articles on the subject. All of the publicity material is for sale at cost by the National Health Council, except the examination forms, which are obtainable at cost directly from the American Medical Association. The motion picture will be distributed for transportation cost only through the co-operation of the Metropolitan Life Insurance Company.

The National Health Council believes in practising what it preaches. It has, therefore, made arrangements for all members of the staffs of its constituent organizations whose headquarters are at 370 Seventh Avenue, New York City, to receive health examinations, either at the Cornell Clinic or at the health center of the Women's Foundation for Health, both in New York City. This is a custom which has been followed for a number of years. During the few months of this year's arrangement more than a third of the personnel of three hundred has been examined. The employees of the New York State Department of Health have been regularly examined since 1922, as have those of many other health departments.

If the endorsement and approval of every leading sanitarian in the country and of every official and voluntary health agency can make a campaign successful, this one ought to be. If public approbation, as expressed through the public press, and by individuals, indicates the support of the people, it is certainly there. It looks as if the human machine was going to get a trifle more consideration during this health examination year than ever before. The greatest compliment that can be paid to any mechanism is to say that it is almost human. The human machine is the most intricate, the most delicate, the best constructed, the most valuable and the one most

worthy of consideration of them all. Whether one goes on the birthday or not for a health examination, it is a present which all owe to themselves. It is the Gift of Life, itself.

Summary

(1) A health examination is a medical appraisal of an individual to ascertain physical impairments and faulty habits, with a view to correcting them.

(2) Health examinations are necessary in the public health movement because the emphasis is changing more and more away from environmental control to the inculcation in the public of personal hygiene.

(3) The experience from health examinations shows that at least three out of four persons have physical defects.

(4) The results of health examinations are to lengthen and enrich the life of the person examined.

(5) The National Health Council has inaugurated a National campaign to induce at least ten million people to have health examinations, between July 4, 1923 and July 4, 1924.

Diphtheria Compensable

Diphtheria as a compensable disease was passed upon by the Supreme Court of Pennsylvania, January 3, 1923. It seems that prior to his injuries the deceased was in good health. January 21, 1920, he fell from one of the defendant's buildings to the ground. He was taken at once to a hospital severely bruised in various parts of his body, particularly his back. It was found that "the transverse processes of three lumbar vertebrae were fractured, accompanied by partial paralysis of the right side, some internal injuries, and a condition of shock." On the tenth day after his admission to the hospital, McCoy, the injured employee, developed some trouble in his chest which seemed to indicate pneumonia. This cleared up, but an examination of his throat revealed the presence of Streptococci, and he was given a serum treatment. On the morning of his death he coughed up some casts, and later the trachea was opened and a quantity of membrane removed. A post-mortem examination showed the existence of diphtheria germs, and it was agreed by physicians and surgeons in attendance that death was caused by diphtheria.

The Board found diphtheria the cause of death and allowed compensation because the "vital resistance was so lowered (by the injuries re-

ceived) that he could not resist the infection by diphtheria bacilli, which attacked him after the injuries were sustained," . . . (adding) "the developing of the diphtheria and its final result was under the circumstances a natural resultant effect of the injuries. The lower court reversed the award of the board because the witnesses did not testify that "taking into consideration all the attending data, it was their professional opinion that result in question most probably came from the cause alleged" and was upheld by the Supreme Court.—*McCoy vs. Jones and Laughlin Steel Company*, 119 Atl. 484.

An Adverse Decision

An injured employee contracted gonorrhea after the accident and the resulting gonorrheal arthritis postponed his recovery many months. The Supreme Court of Illinois in passing upon the situation February 21, 1923, decided that the man could not recover under the Compensation Act for any disability caused by the disease, but only for such disability as was solely caused by an accident arising out of his employment.

"The authorities in this country . . . are to the effect that an employee can only recover for a disability that is caused entirely by the accident which he received in his employment, and that the employer is not responsible for any part of a disability that has been occasioned by another independent agency that has intervened after the accident occurred."—*Bunce Bros. Coal Co. v. Industrial Commission* 138 N.E. 189.

Medical examination for food handlers in Newark, N. J., includes only the most elementary steps to determine the presence of ordinary infections. Among 11,851 examinations made during 1920 to 1922 only thirty-seven cases of venereal disease were discovered, states the health commissioner of Newark in a recent issue of the *American Journal of Public Health*.

Jewish Population Statistics

According to figures recently given out by the Bureau of Jewish Social Research, there are more Jews living in the United States than in any other country. About 3,600,000 are living here; Poland has nearly 3,500,000 Jews, and Russia shelters 3,130,000. New York City is the Jewish city of the world.

The One Best Way for Executives

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many years, and has already been described in writing.

High Cost of Fatigue

You will find little general recognition of the high cost of unnecessary fatigue, which has been conceded by experts to amount to more than twenty cents per day per worker. You should ever bear in mind that the costs from unnecessary fatigue become a part of the high cost of living and are borne by the entire public.

It is expected that you will use your influence in the guidance of national thought and attitude toward the scientific method in business and in industry.

You will find that the tools used in the industries are of all kinds from the best to the worst, and that the two extremes may be found everywhere side by side.

There is no general knowledge even in the manual training schools of the waste that comes from acquiring automaticity with inferior tools and from dividing one's practice and the resulting skill between two or more different kinds of tools for accomplishing the same purpose.

Everywhere any kind of tools are thought to be good enough for an apprentice or other beginner to use during his learning period. There is almost no knowledge even among executives, of habit interference resulting from excess variety of tools and methods. There is almost no recognition of the fact that automaticity is the greatest free asset of the working man and all others who have time for sale; and even a great dental society recently had for its convention program the motto, "Learn All Ways."

You will find it by no means unusual to enable workers and clerks to produce from three to five times the output when they are furnished the one best of each kind of necessary tools and standard conditions.

You will find that one of the chief causes of low outputs per worker is the failure of executives to furnish workers with the right materials, in the right conditions, at the right time and in the right quantity. The same condition prevails in causing low records of sales in our great retail stores.

For those who do not realize what these astounding totals amount to, let us compare them with something that

all people admit is a colossal sum, namely, the Allies' debts to the United States of a eleven billion dollars, which is only one hundred dollars per person living in this country. The preventable waste that you will find is much more than one hundred dollars per person per year, when figured in goods and opportunities for the enjoyment of leisure.

A large part of the working people believe limit of output causes more employment. It is your duty to teach the benefits of maximum outputs per unit of time per person. Conditions are so bad that they would be reformed at once if it were not for the fact that any organization is fairly safe if it is as efficient as its competitors.

In fact, conditions generally are so bad today among competitors, that every banker knows that with an expert in charge of sales, an organization may be fairly successful, even though the manufacturing department is not guided with anything like equal ability. The same thing is true when the conditions are reversed, and the production department is handled with great skill, and the sales department is handled with less ability.

The great financial and industrial organizations are usually successful because of greater efficiency, and after awhile, if they lack the spur of competition or a definite program for improvement, they finally fall into obsolete ways.

This is not, however, to convey the impression that *all* organizations are to be regarded as inefficient or that all workers have inferior methods. Such is far from the case, but my own work of consultant in problems of management over a period of twenty-seven years impresses me chiefly with the characteristic unevenness in the efficient working of the average organization.

Business Needs Leaders

I am also deeply impressed with the inexcusable inefficiency of workers everywhere, and this must be held as due to the fact that employers in general have made no concerted and systematic attempt to make available the details of the best and least fatiguing method extant to all who wish to learn or teach it. The employers, too, are the losers as the same improvement of method would increase the

output and reduce the energy and money expenditure.

Much talk is abroad of the "foolish customs and practices of the working people," but it is to be noted that they have had no schooling whatever in economics, they have not related their own activities to the problems of the day. They honestly believe that executives only await a suitable opportunity to take unfair advantage of them. They are nevertheless quite interested "to do the right thing for general prosperity," but need to be shown the way. Their principal shortcomings are due to the lack of leadership and to the absence of instruction. If you are tempted to blame them for the bad leadership to which they are often subject, a fair comparison of your own political leaders will perhaps engender more patience with them. A similar undesirable educational status marks the English worker, hence the recent intelligent effort to furnish training in the fundamentals of economics in the workers' schools.

There is unlimited opportunity for service in America along these lines. And such instruction is not needed by working people alone. It is needed all along the line. Some of our most respected men and women of affairs, all of whom vote, have next to no conception of or interest in even the most elementary principles of economics.

Mere Repetition, Not Skill

Many people are thoughtlessly inclined to assume that special equipment along a given line is all that is needed in a worker. It seems to them that the bricklayer who knows the mechanics of his work, or the typist who has been able to hold down her job for twenty years, or the surgeon who industriously operates in the same hospital year after year can therefore be accredited with skill in their several lines of endeavor.

But remember, no two workers and no two teachers of workers in any trade or profession do their work precisely alike. Therefore they are probably all wrong but one. Not theory alone favors economy of effort. Long experience and painstaking, leisurely examination of micromotion study of the best possible demonstrations have demonstrated as final the principles which underlie the development of the

standard method in any given occupation.

Even the pickers of berries, working at a trade perhaps as old as the berries themselves, have shown, under the most careful and painstaking analysis of their behavior, no indications whatever of having inherited any instinct for picking any kind of berries in the one best way. No two farmers and no two deans of agricultural colleges agree upon the one best way as to methods and motions of the simplest repetitive processes upon the farm.

There is the wide possible range of improvement in all kinds of work, and for executives who desire to participate in guiding trends of progress. The list could be extended indefinitely. Our schools and colleges are in the same predicament. There are exceedingly few college presidents today who will not admit that the methods used in our schools are bad. Each will tell you that he is hindered because he is surrounded by traditions, customs, and the mental inertia of his trustees, the majority of whom are so pleased to be on the board, that progress by the fumbblings of slow evolution seems to be the only possible way. Two college presidents have expressed themselves openly to me on this subject within six months. Talk to the head teachers of the high and grammar schools and you will find the same conditions plus the further handicap of the necessity of fitting for the obsolete methods in the colleges, together with the added fear of speaking the facts.

You will find that much trouble comes from lack of measurement. I could give you names and places where actual measurement of school affairs is being done at the present time, and fathering the facts is causing some trouble for the measurers. The new science of business management is a problem in teaching, and if you make your decisions as a result of measurement you will be nearest right the largest percentage of times.

The world needs you to emphasize and give prestige to such axiomatic truths as surround the finding and presentation of the one best way to do work, as demonstrated by the best demonstrator possible, operating under motion study experts.

You will not be called upon to fumble, invent, perfect and learn how to use efficiently the units, methods, and devices for obtaining the one best way to do work, for the laborious studies of the pioneers of efficiency standards have already perfected

methods and devised unit measurements.

Your generation is lucky. You appear upon the scene in the world's history when sufficient of the units, methods and devices for recording, analyzing, measuring, standardizing and synthesizing elements of the one best way for executives to do work have been developed ready for you to use.

Find Facts And Know Them

You have been taught how to find facts, how to know facts and how to use facts. The scientific method of attack is now at hand and in your possession. The detailed technic of finding and using the one best way is now available, and the training which you have had prepares you exceptionally well for such work. It is necessary only to point out to you the needs for your endeavor.

The great opportunity for precision study that you have enjoyed has not been given for your benefit alone. You have now a religious duty as expressed by the greatest law for conduct and also, happily, the greatest law for management, namely the golden rule, and the greatest joy in the long run will come to you in the joy of achievement in service to your fellow man. You must use these opportunities to standardize human service.

You have had the best opportunities, far, far beyond the average. The "average methods" have never led to maximum progress. The "average man" has never led civilization anywhere. You can lead because your opinions will be respected, they will be based upon cold-blooded measurement.

The super-method of the super-leader and super-executive will bring us in the shortest time to the one best way in all things—that all may have more of the durable satisfactions of life. It is your duty as executives, to put that idea into the minds of all men according to their capacities.

All problems relating to the methods for altering the conditions cited here have already been solved. The results can be seen in successful daily use. It is expected that you will be satisfied with nothing less than the dissemination and application of the one best way for executives derived from measured facts.

John P. Harris, chemical engineer specializing on edible oils and packing house work, has been appointed director of the Bureau of Practical Research of the Institute of American Meat Packers.

Distinguished Industrial Hygienist Visits America

Sir Thomas Oliver, the distinguished British occupational disease expert, will visit the United States during September and October. Sir Thomas contemplates a rather extended trip, as far west as Chicago and as far south as New Orleans, chiefly for the purpose of visiting representative industrial establishments suggestive of the progress which has been made in industrial hygiene and employee's welfare work since 1912, when he made a similar tour of inspection, limited, however, to a more restricted area. His study will include oil refineries, felt hat-making, potteries, printing and electrotyping establishments, industries concerned in the manufacture and handling of asbestos, tobacco, cotton, iron and steel, sugar, white lead, limestone, motor cars, rubber, paper, wool, and possible coal and slate. The itinerary of the trip is in charge of Dr. Frederick L. Hoffman, consulting statistician of the Prudential Insurance Company of America.

Disability from Fall

In the employ of the Hardware Company an employee was running a truck load of heavy hardware across the floor March, 1918. Mr. Parkinson, who was pulling, fell down because a stake on the truck gave away. He arose without assistance and went on with his usual duties. He lost no time and employed no doctor. He left to take other work with a railroad company, but contracted "flu" and was seriously ill. He returned to the railway company and May 20, 1919, was operated for gall bladder trouble. He returned to work but was again operated January 16, 1920. It was found that he had developed Pott's disease and was disabled for further labor. The question is raised as to whether the disability is chargeable to the fall. It was pointed out and agreed since "there is no competent or disinterested evidence in the record indicating imminent symptoms" during the nine months following the fall, the claim necessarily fails. The case involved "a disputed question of medical fact as to whether the alleged injury was the cause of the Pott's disease and the resulting disability, or whether the Pott's disease resulted from some other cause. Inasmuch as there was ample evidence to support the decision of the commissioner, the finding was upheld.—*Parkinson v. Brown Camp Hardware Company*, 192 N.W. 420.

Health in Girls Continuation School

(Continued from page 604)

attractive and in a quiet part of the building. There should be provided an examining table, scales, well supplied first aid cabinet, examining gowns, mirrors for corrective work, a desk and suitable charts for instruction. If a separate rest room can not be provided, the examining room should be large enough to permit the screening of one side for a couch, so that girls taken ill at school may receive immediate first aid treatment.

According to the proposed scheme of health education each girl in the school receives at least one complete examination each year. This is given as soon as possible after her admission to the school. If there are indications for other minor examinations during the year, these are provided.

When the girl is ready to leave the school, she is examined by nurse or doctor for general appearance and cleanliness. All of her follow-up cards are checked and her diploma is not granted unless she has a passing grade in health and cleanliness.

By a close follow-up system, each girl is so frequently checked during the year, there can be little possibility of her failing to measure up to these final requirements.

Hygiene of instruction includes a consideration of the entire school environment. Our problem is not alone what shall we teach these girls, but also, how shall it be taught in the most telling manner and under the most attractive and hygienic conditions.

The girls come under the school influence but a few hours each week. These hours must be made to count. From the minute the girl enters the buildings she should be made to feel that the school has been created for her. She should find here every necessary comfort and as many luxuries as the school can provide. In many cases the hours spent in the classroom are the only relaxation periods in a long week made up of days spent bending over noisy, ceaseless machines, or spent standing at tables

monotonously matching cigars or mechanically pasting labels on paint cans.

Instruction In Hygiene

In the school room the tired factory girl should be made comfortable, and as happy as may be.

Instruction in hygiene forms an important part of the health program. The course of study should be made to fit the needs of these particular

Classroom instruction should be given: (1) by the class room teacher in connection with the regular class room work; (2) by doctors as he visits the various rooms from time to time. Definite cases discussed bring greater results than general talks or lectures; (3) by the nurse as she makes daily inspection or goes from room to room checking the follow-up work; (4) by visitors or invited speakers, who may be interested in health subjects.

Special interest could be aroused in these talks if the girls could be assembled for them.

Instruction in Physical Training should include setting-up drills, breathing exercises, general drill in posture for all girls, special individual work for girls with marked postural defects, marching to music, games, and folk dancing.

Without explanation, this may seem an elaborate program of physical exercises, but all these lines may be followed by devoting only a few minutes each day to this work.

In the summary of his report, Dr. Mitchell indicates as follows the lines along which there should be more activity in order to provide properly for the health of these children:

(1) Demonstrate how the problem can be administered efficiently and economically.

(2) Study the environment of the employed adolescents to understand the relative importance of factors influencing health.

(3) Study course of various physical handicaps under conditions of employment in order to establish better standards for health protection.

(4) Devise methods of teaching hygiene for the industrial and mercantile worker.

If the course of procedure suggested were followed, it is believed provision would be made for increased activity along the lines which Dr. Mitchell suggests.

The plan requires the services of a physician for but three half days each week; of a full time nurse, and of a teacher of physical training for one hour each week. We believe this would provide for the "efficient and economical administration of the problem."

Educational and Physical Standards

ALL except eighteen states make some legal provision regarding a child's physical ability to go to work, but only twenty-two states make such examination mandatory. Nine states still permit children between fourteen and sixteen years of age to work ten or eleven hours a day. Physical examination at regular intervals is the exception, not the rule. Compulsory part-time school attendance is called for in twenty-six states, but only twenty of these require schools to be established under specified conditions. Health supervision, chiefly to be applied through continuation schools, presents the special problems outlined in the Newark survey.

girls. Such a course of study can be formulated only by those who know and have come to appreciate these needs through intimate, sympathetic association with these girls.

All the workers in the school should cooperate with the doctor in outlining the health program. The subject matter should be varied and should be related directly to the interests of these particular girls. The introduction of practical work into this school will afford abundant and valuable opportunity for the correlation of health work with cookery, dress making, housekeeping, etc.

No definite periods during the day need be devoted to so-called hygiene. Health should be taught throughout the day; every opportunity should be utilized.

KOTEX



Another advantage to women

Few new ideas have ever scored such quick and sound success as Kotex. Women everywhere approve this wonderful sanitary pad. Only three years after its introduction, Kotex is today an important part of the American woman's toilette.

Kotex forms a new habit from the very first box. It solves a laundry problem. It meets the most exacting needs. It is easy to dispose of and cheap enough to throw away by following simple directions found in each box. It is comfortable, convenient and *instantly available*.

Kotex is made from fine gauze and Cellucotton, which is said by scientists to be the most perfect absorbent material—much more absorbent than ordinary cotton. Kotex is far superior to old fashioned make-shifts.

The first box of Kotex brings a new convenience, a new comfort, a new economy.

Sold everywhere in good stores that serve women. One need only say Kotex—

Ask for them by name



Regular Size, 12 for 65c
Hospital Size, 6 for 45c
(Additional thickness)

Kotex cabinets are now being distributed in women's rest rooms everywhere — hotels, office buildings, restaurants, theatres, and other places — from which may be obtained one Kotex with two safety pins, in plain wrapper, for 10 cents.

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INEXPENSIVE, COMFORTABLE, HYGIENIC and SAFE — KOTEX

Am I Physically Fit to Teach?

(Continued from page 586)

present at each meeting. Where it is necessary, the school nurse or nutrition worker visits the home.

Tuberculous Children

Included in the twenty classes are those conducted at the two schools for tuberculous children. Here it is possible to carry on an intensive program that has developed gratifying results. During the past semester twelve cases of active tuberculosis have been pronounced arrested as compared with eight cases for the entire school year previous to the introduction of this special work. And the average gain in weight at present is 8.9 pounds per child as compared with 2.7 pounds. During the summer the nutrition classes are continued at the Children's Day Camp where these little folks spend their vacation. And the nutrition worker keeps in close contact with the homes, in an endeavor to improve general conditions.

Other extensions of this city-wide nutrition campaign are:

(1) The mid-morning milk and graham cracker lunch service in 86 school buildings. The average daily consumption is 15,695 half pints of milk with from 2 to 4 graham crackers with each bottle of milk. In a large number of the schools, the teachers take the entire responsibility of this service to children. In other schools members of the Parent-Teachers Association are in charge. The milk, a straw, and two graham crackers are sold for four or five cents. The children are encouraged to spend their pennies for this wholesome lunch instead of dill pickles or lollipops. The quality of milk selected is determined by the rating of the dairy. The school principals were asked to place their names on the mailing list of the monthly Milk Rating Bulletin issued by the Board of Health, and to select the milk having the highest rating. This has a tendency further to improve the quality of all milk and in turn benefit the general public.

(2) The weighing and measuring of 18,972 school children who play the red, white and blue weight card game and to whom a four page folder was

distributed containing a daily health program and information regarding the importance of correcting physical defects.

(3) The "Health Jingles" attractively illustrated are distributed annually to all third grade pupils, and to all fourth grade pupils the health rules of the local Tuberculosis Association. At the suggestion of the superintendent these publications are used as subject matter by the teacher before the children take them home.

(4) A syllabus on "Health Training and Instruction" was written by the director of physical training for the teachers of the elementary and

junior or thrashed me." Now instead of "thrashing" the nervous, irritable underweight child, he receives a physical examination, is told how to get well, and is taught daily how to keep well. The results are infinitely better.

The Best Modern School

Today the best schools are placing proper emphasis on health. Physicians and nurses are keeping a watchful eye upon the pupil through regular medical inspection, and a record of physical progress is filed along with the record of progress in study.

The majority of parents can afford to pay for medical advice regarding the care of their children and appreciate the value of possessing the best scientific information for maintaining health. In many cases, however, this service can not be paid for except in emergency. In other cases parents do not realize the importance of preventive practice. It is that part of malnutrition and illness due to ignorance or economics that is finding solution in the clinical examinations and the widely extended teachings of good hygiene now rapidly becoming a part of the curriculum of all modern public school systems. The less progressive communities re-

sist this extension of medical and health supervision of their children by the school physician, nurse and nutrition workers, believing this duty lies entirely within the province of the home.

However, in the very creation of free schools and compulsory education we have acknowledged the fact that we can not entirely rely upon the initiative of the parents. Who then can question that the physical development of the child is not of equal importance with his mental development?

The waste of skim milk in this country is a crime. The Department of Agriculture estimates that the amount of skim milk represents annually a protein value of 913,000,000 pounds, approximately equivalent to eight billion pounds of beef, which is said to be nearly equal to the annual consumption of beef in this country.



Miner Normal School student teachers, seriously underweight, ready to return to their studies after taking their rest periods on the roof of the school.

junior high schools of the District of Columbia.

(5) Children 10 per cent or more underweight for height are excluded from strenuous athletics. This new ruling was inaugurated last year after the physical training director's attention was called to the various reports of the nutrition teachers showing these seriously underweight children lost weight consistently while participating in the spring athletics. Formerly it was customary to exclude only the pupils who were below the 71 per cent requirement in their studies. A minimum standard of physical fitness is now recognized to be of equal importance.

A prominent educator recently said "When I went to school the teachers were supposed to train my mind, but they did not know what to do with my body, it wanted to wriggle and twist about and so they stood me in a cor-



Cantilever Stores

Cut this out for reference

Akron—H. Orpheum Arcade
 Albany—Hewett's Silk Shop, 18 N. Pearl St.
 Allentown—907 Hamilton St.
 Altoona—Bendheim's, 1302 Eleventh Ave.
 Asheville—Pollock's
 Atlanta—126 Peachtree Arcade
 Atlantic City—2019 Boardwalk (Shelburne)
 Baltimore—125 North Charles St.
 Bangor—John Conners Shoe Co.
 Berkeley—The Bosters
 Binghamton—Parlor City Shoe Co.
 Birmingham—219 North 19th St.
 Bridgeport—W. K. Mullan
 Brooklyn—516 Fulton St., Primrose Bldg.
 Buffalo—641 Main St.
 Butte—Hubert Shoe Co.
 Canton, O.—H. M. Horton Co.
 Cedar Rapids—The Killian Co.
 Charleston, S. C.—J. F. Gordon & Sons
 Charleston, W. Va.—John Lee Shoe Co.
 Charlotte—228 North Tryon St.
 Chicago—130 E. Randolph St., Room 502
 11659 Leland (near Broadway)
 Cincinnati—The McVipon Co.
 Cleveland—Granger-Powers, 1274 Euclid Ave.
 Colorado Springs—Wulff Shoe Co.
 Columbus, O.—104 E. Broad St., at 3rd
 Dallas—Volk Bros.
 Dayton—The Rike-Kumler Co.
 Denver—224 Foster Bldg.
 Des Moines—W. L. White Shoe Co.
 Detroit—41 E. Adams Ave.
 Duluth—107 W. First St., near 1st Ave. W.
 Elizabeth—Gill's, 1653 Elizabeth Ave.
 Elmira—C. W. O'Shea
 Erie—Weschler Co., 910 State St.
 Evansville—North Shore Bootery
 Fall River—D. F. Sullivan
 Fargo—Hall-Allen Shoe Co.
 Fort Wayne—Mathias App's Sons
 Fort Worth—Washer Bros.
 Grand Rapids—Herpolzheimer Co.
 Greenville—Pollock's
 Hagerstown—Bikle's Shoe Shop
 Harrisburg—36 So. 3rd St., Second floor
 Hartford—Trumbull & Church Sts.
 Haverhill—McGregor's, 21 Washington St.
 Holyoke—Thos. S. Childs, 275 High St.
 Houston—306 Queen Theatre Bldg.
 Huntington, W. Va.—McVabon-Diehl
 Indianapolis—L. S. Ayres & Co.
 Ithaca—Rothschild Bros.
 Jacksonville—Golden's Bootery
 Jersey City—Bennett's, 411 Central Ave.
 Kalamazoo—The Bell Shoe Co.
 Kansas City—No. 600 Arrian Bldg.
 Kingston—E. T. Stelle & Son
 Knoxville—Spence Shoe Co.
 Lancaster, Pa.—Boyd's, 51 E. King St.
 Lawrence, Mass.—G. H. Woodman
 Lewiston—Laney-Welchan, 110 Lisbon St.
 Lexington, Ky.—Denton, Ross, Todd Co.
 Lincoln—Mayer Bros. Co.
 Long Beach, Calif.—Farmers' Bank Bldg.
 Los Angeles—505 New Pantages Bldg.
 Louisville—Boston Shoe Co.
 Lowell—The Bon Marche
 Lynchburg—Isbell-Bowman Co.
 Madison—Family Shoe Store
 Mansfield—Browell Shoe Co.
 Memphis—28 No. Second St.
 Milwaukee—Brouwer Shoe Co.
 Minneapolis—25 Eighth St., South
 Mt. Vernon, N. Y.—A. J. Rice & Co.
 Nashville—J. A. Meadors & Sons
 Newark—897 Broad St., 2nd floor
 New Bedford—Olympia Shoe Shop
 Newburgh—G. A. C. Van Beuren
 New Castle, Pa.—229 E. Washington St.
 New Haven—133 Court St., 2nd floor
 New Orleans—109 Baronne St., Room 200
 Newport, R. I.—Sullivan's, 126 Thames St.
 New Rochelle—Ware's
 New York—14 W. 40th St., (opp. Public Library)
 Norfolk—Ames & Rochester
 Oakland—295 Henshaw Bldg.
 Oklahoma City—The Boot Shop
 Omaha—718 Howard St.
 Pasadena—378 F. Colorado St.
 Paterson—10 Park Ave., at Erie Depot.
 Peoria—Lehmann Bldg., Room 203
 Philadelphia—1300 Walnut St.
 Pittsburgh—The Rosenbaum Co.
 Pittsfield—Wm. E. Hay, 234 North St.
 Plainfield—M. G. Van Arsdale
 Portland, Me.—Palmer Shoe Co.
 Portland, Ore.—353 Alder St.
 Poughkeepsie—Louis Schenberger
 Providence—The Boston Store
 Reading—Sig. S. Schweitzer
 Richmond, Va.—Seymour Syle
 Cranston—J. Bachrach Shoe Co.
 Rochester—257 Main St., 3rd floor
 Rockford—D. L. Stewart & Co.
 St. Louis—516 Arcade Bldg., opp. P. O.
 St. Paul—411 5th St., Frederic Hotel
 Sacramento—28 Decker Bldg., & near 7th
 Saginaw—Gueschel-Kuiper Co.
 Salt Lake City—Walker Bros. Co.
 San Diego—The Varston Co.
 San Francisco—Phelan Bldg., Arcade
 Santa Barbara—Smith's Bootery
 Savannah—Clube Shoe Co.
 Schenectady—Patton & Hall
 Scranton—Lewis & Reilly
 Seattle—Raxter & Baxter
 Shreveport—Phelps Shoe Co.
 Sioux City—The Pelletier Co.
 Sioux Falls—The Rice Hise
 South Bend—Ellsworth Store
 Spokane—The Crescent
 Springfield, Mass.—Forbes & Wallace
 Stamford—L. Spelt & Son
 Syracuse—121 West Jefferson St.
 Tacoma—253 So. 11th St., Fidelity Trust Bldg.
 Toledo—LaSalle & Ketch Co.
 Topeka—The Pelletier Store
 Trenton—H. M. Voorhees & Bro.
 Troy—35 Third St., 2nd floor
 Tulsa—Lyon's Shoe Store
 Utica—115 Genesee St., 2nd floor
 Washington—1319 F. Street
 Waterbury—Howland-Hughes Co.
 Wheeling—Geo. R. Taylor Co.
 Wichita—Rorabaugh's
 Williamsport—John B. Irvin
 Worcester—J. C. MacInnes Co.
 Yonkers—22 Main St.
 Youngstown—B. McManus Co.

Agencies in 288 other cities



You Will Enjoy Walking in these Comfortable Shoes

LATE afternoon—footsore shoppers turn to glance with admiration and envy. Who could look fresher and lovelier than a fashionably dressed woman swinging along in shoes as light and flexible as her step? All the vigor and grace of youth are in her carriage.

Comfortable Cantilever Shoes do away with tiring, shoe-bound steps. Flexible arches act in agreeable harmony with every demand of your supple foot arches, as the rigid arches of ordinary shoes cannot. This flexibility allows free play, giving to all the foot muscles the normal exercise that strengthens them sufficiently to hold the 26 small bones of the foot in their proper arched positions.

Cantilevers support, too. The snug-fitting, flexible arches curve up when

you lace the shoe, to support the arch of the foot, gently and naturally, on the inner and weaker side. Your feet are enabled to carry properly the weight of the body without strain or restriction of the foot muscles. In trimly shaped vamps, your toes can straighten out in comfort. Natural lines and moderate heels afford a firmer purchase on the ground and the poise and grace which come from that.

Walking is so often a dreaded effort that tires the feet and frets the face. In Cantilever Shoes, it's a joy, an invigorating exercise that stimulates the circulation and brings a healthy color to the cheeks, such as you see on those smart American women who spend much of their time out-of-doors at the country club.

Except in New York and Chicago, only one store in each town is selected to sell Cantilever Shoes. If no dealer in this list is near you, write the manufacturers, Morse & Burt Co., 15 Carlton Avenue, Brooklyn, N. Y., for the name and address of a nearby dealer and a new booklet on the subject of feet and comfort.

Endorsed by women's Colleges, Women's Clubs, Public Health Authorities, Physicians, Osteopaths, Directors of Physical Education, Editors, Stage Celebrities and prominent women everywhere.



Cantilever Shoe



ILETIN INSULIN, LILLY

The active principle derived from the islet tissue of the pancreas of animals, prepared in aqueous solution for use in the treatment of diabetes mellitus.

This product was discovered and developed in the University of Toronto and is made on a large scale manufacturing basis, under the authority of that institution, by Eli Lilly and Company.

Physicians who contemplate using Iletin should study carefully the information now available, particularly that relating to the adjustment of unitage to diet and the prevention of accident due to overdose. It is advisable that patients be given a preliminary treatment in a hospital or an institution in which adequate dietetic and laboratory supervision is available.

LARGE SUPPLIES AVAILABLE AT VERY MODERATE PRICES

Present stocks of Iletin are in excess of national current use and our facilities for production will meet any conceivable demand.

At present Iletin is not carried in stock by the drug trade. It will be sent directly from Indianapolis to physicians and hospitals on orders placed through druggists. These orders will be invoiced to the druggists.

Iletin is supplied only in 5 c.c. ampoule vials. Order as:

H-10 (50 units) containing 10 units in each c. c. \$1.75
H-20 (100 units) containing 20 units in each c. c. 3.00

[F.O.B., Indianapolis]

AVERAGE DAILY COST TO PATIENT

In reply to inquiries and mis-statements concerning the cost of treatment, one of the largest clinics using Iletin reports that the average consumption per patient is ten to twelve units per day, costing thirty to forty cents. It is our policy to keep the price moderate and to give users of Iletin a share in the economies that may result in the future in increased production due to a larger consumption.

Pamphlets on Iletin and order blanks will be sent physicians on request.

ELI LILLY AND COMPANY
INDIANAPOLIS, INDIANA

The Market As a Service Institution

(Continued from page 588)

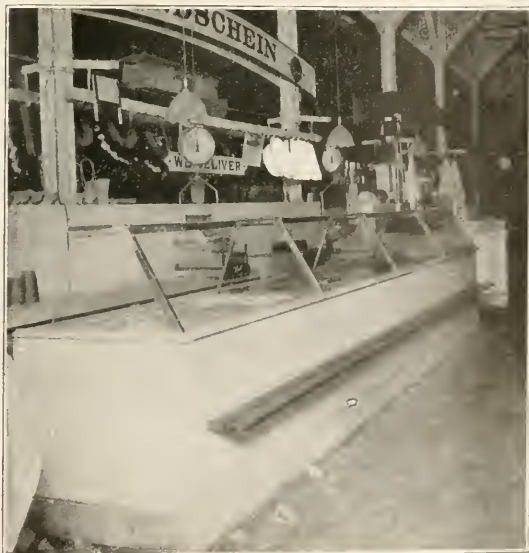
section on either end, four inches in depth, allows the fish to be displayed on crushed ice and protected from the inquisitive finger of the purchaser. Two large center storage sections serve for temporary storage of a reserve supply of fish and allow for immediate replenishment of the display supply. These sections are insulated with cork and a drain connects with all sections to carry off the waste. The cost of the stand was about one thousand dollars.

A poultry display stand, in which the dressed poultry under a glass protector can be seen by the purchaser to advantage and still be kept in a sanitary condition, which has been installed at a cost of about one thousand two hundred dollars meets the most critical inspection. A new stand for fruits and vegetables has been installed for about \$650, and several bakery stands are under construction. Improved, refrigerated meat stands are still under study.

These new stands replace the oldest and most undesirable stands in the market. Rents are increased 20 per cent so that the stands will pay for themselves within four or five years. There is a great demand for them, and the superintendent has many requests from standholders that their stands be rebuilt in accordance with most modern designs. Some of them have not hesitated to bring pressure to bear to secure the new stalls, showing the appreciation of improvement and the advertising value of sanitation. These improve-



An especially designed stand for selling dressed poultry. Center Market, Washington, D. C.



A model distributing market for fish at Center Market, Washington, D. C., which is a part of the only meat market in the country employing the exclusive services of a meat inspector on full time. Improved refrigerated meat stands are still under study.

ments will be made as fast as earnings warrant, and according to prearranged plans of development. Specifications for these stands are available to other public or to private markets.

Mr. Kitchen's administration of Center Market during this year has demonstrated that increased efficiency in operating a market can so increase revenues that additional funds are made available for increased sanitation. Not one but many changes in management have brought in or increased revenues for the property. Some have meant only a few dollars increase, others have meant an increase of many hundreds of dollars.

Center Market is probably more effective as a demonstration than a new market would be. There should be no difficulty in maintaining high-class conditions in a new plant, but to renovate an old one and make and keep it wholesome and sanitary is quite another matter. That is the problem that at one time or another confronts the large majority of American cities.

"Sanitation is a good business asset for any market" says Mr. Kitchen. "The patrons appreciate it and with it they are willing to recommend the market to their friends, when without it they wouldn't even if they continued to trade there themselves. It provides one of the best bases for advertising. It increases the standholders' pride in their business and the town's pride in the market as a civic institution."

Fresh Air Outings in Child Care

(Continued from page 592)

pational therapy and education? Is the aim to meet the needs of a child, or to offset the failures and shortcomings of organized society and familiar weaknesses?

The answers to these questions will help to define the objectives of fresh air agencies as a factor in child care. Similarly, it will aid in determining whether or not a doctor or nurse, or both, should be constantly in attendance at places where children are to receive this supplemental physical advantage.

There is definite data available to indicate what can be accomplished through fresh air classes, health centers, nutrition classes, infant welfare stations, mental hygiene clinics, and similar medico-social agencies, under the ordinary conditions of city life. Hence, from a distinctly medical standpoint, one may properly suggest the importance of careful inquiry into the purposes, administration, and end results of fresh air outings.

Statistics thoroughly demonstrate the superior health of children in the city over those in rural sections, indicating that fresh air is by no means the single dominant element to be considered from the health standpoint, omitting all matters of sentiment, interest in recreation, or the making of purely social adjustments.

The death rate of New York City for January, 1923, was 13.1 per thousand, while for the rest of the state it was 20.0. The infant mortality for the same month in cities and other incorporated places having a population of 2,500 or more, at the 1920 census, was 106, and in the rural districts it was 95, while in New York City it achieved the excellent figures of 71.

While these figures are for a single month in 1923, they are fairly representative of the comparative statistics during all seasons of the year. It may be fairly said that the actual part played by fresh air agencies in bringing about the reduction in infant and child mortality in New York City has been the least effective factor, if one omits sanatorium care and convales-

cent homes, but lays stress only on the assistance given by means of fresh air outings. It must be remembered that when the movement towards fresh air outings was first begun, there was a general lack of the more modernized educational approach to the problems of child welfare. As is usually the case, an institution once founded tends to continue until there is a check in the program by reason of an overwhelming proof of its relative place in communal-social organization.



The dinner call, Children's Summer Home, New York Children's Aid Society.

The bulk of the organized fresh air work for children of the school age possesses questionable warrant on the basis of health requirements. The lowest mortality rate and smallest number of deaths occur among children between five and fourteen years of age, as compared with other age groupings. The function during the school period is in connection with disease states and their sequelae, or the attack upon incipient maladies as determined by protective medical inspection or examination.

The Preventive Standpoint

The requirements for outings before the age of five years are probably greatest from the preventive standpoint, providing the period of stay is sufficiently long to possess prophylactic value or bring about a restoration through an adequately supervised convalescence.

The importance for particular attention to the physical needs of children between the ages of five and six may be stressed, as it is desirable to secure for them the highest health potentials before undergoing the inherent hazards of schooling under existent conditions. Another special age period arises during the first two

years of life when vital energies are sorely strained by nutritional difficulties and a lack of properly ventilated homes. From the point of view of service, much greater attention is required to the help that may be given to children who present problems in behavior. As a medical procedure, it may be essential to secure placement for various periods of time in open air homes and camps, foster homes or institutions, now designated as convalescent homes. My experience with

this group has revealed the inadequacies of our plans for meeting their needs. At the present time this phase of the problem is serious in connection with the after-care of children who have conduct disorders or alterations of personality, due to encephalitis. Our program has not taken sufficient cognizance of the readjustments required for hysterics, pseudo-epileptics, adolescents with emotional

crises, and the group that is undergoing the complicated strain of neuroses and potential psychoses.

Should there not be a further consideration of the preventive values of fresh air care in terms of all subnormals, mental and moral, as well as the purely physical substandard children? The interrelation of all elements of a child's nature has a distinct bearing on each factor contributing to future social and economic efficiency. It becomes necessary to broaden our outlook beyond tuberculosis, cardiac disease, infantile paralysis and post surgical restorations. The field of service should be mapped out in the light of the medical benefits that are to be secured for raising the standards of communal health and welfare.

I do not wish to be misunderstood. Fresh air outings have been of considerable value, but I am now speaking particularly from the medical point of view and in terms of preventive and therapeutic end results. I believe that their complete potentials have not been developed, by reason of a failure to appreciate their possible contribution to the complete physical life of children. I have noth-

Experience is the Best Teacher

RIGHT! Whether the experience be yours or that of others, the profitable lesson is there to learn and follow.

Now let us see what experience teaches regarding Coffee.

Hektoen and LeCount, probably two of the greatest pathologists this country has produced, have shown conclusively that the continual use of caffeine in the small doses usually found in Coffee, *produces no lesions whatsoever* in any tissues of the body. Is there any equivocation there?

Again, Hollingworth has definitely shown that caffeine enables a person to do more mental work in a given time than he is capable of doing without it; and—*here's the point*—the increased work is *not* followed by depression or exhaustion. Positive, isn't it?

In the face of these authorities—and we could quote many more—is there any wonder that the thinking physician

hesitates before taking from the breakfast table the patient's accustomed, cheering cup of Coffee?

Only after the *clinical findings* indicate the necessity, or even the possible desirability of such action, does the physician of to-day strike Coffee from the dietary. Experience teaches him that it is wise to keep the patient's diet as near normal as possible; that it is as unwise as it is generally unnecessary to rule out Coffee. Experience teaches him that he can turn Coffee, the favorite morning beverage of most Americans, to good account, because it is a mild but reliable cardiac stimulant, an aid in constipation, a renal tonic, and a first aid to unresponsive appetites.

Think of these facts before unreservedly banning Coffee. Let the diagnostic findings of *each particular case* dictate your action.

ing but words of appreciation for the social and recreational service which has been provided and which admittedly does contribute to raising the general levels of physical comfort and happiness of childhood, particularly during the long heated summer season.

Is it not important, however, to consider the fresh air program in terms of a three hundred and sixty-five day year and to organize all existent agencies in such a manner as to provide for a better distribution of service throughout all the months, rather than to allow the bulk of the enthusiasm, as well as the facilities, to be centered about the vacation period? Outings in January are no less useful than in July or August, from the viewpoint of prophylaxis or therapeutics, if health is the aim.

Why Only in Summer?

The fresh air outings are not to be regarded as a plan for summer care of children, but should be interpreted as a valuable supplemental aid throughout the year, for the purpose of raising the health standards of the community. There should be large and small institutions and camps for the general management of problems arising in connection with lowered physical vitality, not related to specific maladies. Similarly, there should be places which will receive children for indefinite periods of time, in order to care for a considerable group of conditions of non-contagious nature, requiring little medical oversight or nursing care. Other types for more or less permanent care, as preventoria or sanatoria, are necessary for the care of the tuberculous, the cardiopaths, the rheumatics, choreics, and those recuperating from surgical procedures or mental imbalances, wherein medical supervision and nursing care are requisite. Further, there should be a development of fresh air homes that accept one, two, or three children, for a larger variety of conditions than are now cared for by the Speedwell's system. In all, however, I firmly believe that the period of stay should be determined by the physical needs of the child, rather than pre-determined by a definite, fixed policy, arranged on the basis of giving a limited amount of care to the largest number of children.

This admittedly is a purely medical point of view, even though I am thoroughly conscious of the point of view of organizations operating fresh air homes and of social workers. I am thinking and talking in terms of the maximum benefits to the largest num-

ber of children actually meriting this special care, rather than of limited benefits to a still larger group of children, for whom it is not imperative. I am speaking for the greatest service to the community, as preferable to the small returns that result from the large, wholesale fresh air outings. Quality of service should take precedence over quantity, in measuring the medical values of fresh air outings and convalescent care.

Aid to European Medical Scientists

"We need food not only for our bodies but for our minds," wrote a Russian medical professor in acknowledging the receipt of periodicals and books provided by the Rockefeller Foundation. The Foundation has left to other organizations the task of emergency relief and has concentrated efforts upon helping to maintain the continuity of scientific work by filling gaps in medical libraries, contributing apparatus and supplies to laboratories, supplementing the stipends of productive research men, granting fellowships for foreign study, and inviting commissions to make international visits.

"During 1922, journals to the number of 1,323 subscriptions were sent to 216 medical libraries in twelve different countries. In a number of places committees of scientists arranged for the abstracting and circulating of periodicals and thus utilized them to the utmost.

"The wearing-out of apparatus and the depletion of current supplies in scientific laboratories were inevitable results of the war. The medical schools of Vienna, Gratz, Budapest, Innsbruck, and Prague were among the first to suffer acutely. To these the Foundation made grants. The scope of emergency laboratory aid was later extended to include German and Polish laboratories.

"Serious as were the problems of literature, equipment, and supplies, the question of personnel was absolutely vital. It was feared that the continuity of scientific progress might be interrupted, because young men either would be unable to go on with their studies or could not be trained to the oldtime efficiency. To assist the Pasteur Institute of Paris to recruit and educate research assistants the Rockefeller Foundation pledged in 1921 the sum of \$75,000 to be paid in three installments during 1921, 1922, and 1923. Fellowships for foreign study have been awarded to men and women in Austria, Belgium,

Czechoslovakia, England, France, Netherlands, Hungary, Jugoslavia, and Poland.

"Until the autumn of 1922 it had not seemed necessary to grant fellowships to men for study in their own countries, but the plight of medical scientists in Germany and increased cost of research menaced the quality if not the very existence, of German medical science. A program of emergency relief was adopted by the trustees in December, 1922.

Tonic and Food Values in Citrus Fruits

The great achievement of the present day, says Dr. J. R. Harris in the *International Journal of Surgery* is the knowledge of how to attain health through the use of appropriate foods. When properly nourished, the body is less susceptible to infection and less prone to periodic breakdowns.

Dr. Harris especially recommends the citrus fruits as containing just the acids that are needed to stabilize the system and keep it properly regulated. The juices of oranges and grape fruit contains a generous amount of nutriment in the form of pre-digested fruit sugar. They also contain a quantity of absolutely pure, distilled water and they introduce into the blood various mineral salts which have a regulating influence.

Oranges are especially useful in making up deficiencies of the diet due to a preponderance of refined foods. A positive mineral as well as vitamin deficiency can well exist in the absence of natural foods. In colds, fruit juices perform the function of neutralizing the excess of acid in the system, and at the same time they afford a source of lime, which stimulates body secretions and activates the white corpuscles to perform their function.

Citrus are placed seventh in a list of all foods named in the order of their relative importance. They rank even higher as a source of vitamins. In the juice of grapefruit there are two parts of vitamin B and three of vitamin C, while in orange juice there are one part of vitamin A, two parts of vitamin B, and three parts of vitamin C. Orange juice is a valuable addition to the milk dietary of babies. The old adage that fruit is golden at breakfast, silver at noon, and leaden at night is dead. Citrus fruits can be profitably taken at any time, and they are always digestible.

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Sewage Disposal Problem of Chicago

(Continued from page 599)

sludge the so-called "septic tank" has been devised, in which an aerobic bacterial action takes place in the settled sludge, resulting in disintegration of the solids and their conversion into such gases as carbon dioxide, methane, nitrogen, and hydrogen, or into soluble substances which pass off with the liquid effluent. Experience indicates that the actual reduction in weight of solid matter in such tanks averages perhaps 30 per cent. The volume of sludge is often not over 20 or 25 per cent that which would be produced from the same quantity of sewage in a plain sedimentation tank. In some instances it has been practically free from odor, but this is not invariably the case. Violent ebullition caused by gas escaping from the sludge has an unfavorable effect in that it forces into renewed suspension quantities of the finely divided solids and allows them to escape with the effluent.

In the tank devised by Dr. Travis a separate sludge, or "liquefying" chamber is provided. Through the sedimentation chamber 87.5 per cent of the sewage is supposed to flow in five hours and 12.5 per cent over weirs through the narrow openings into the liquefying chamber where it remains for fifteen hours, the theory being that a seeding with fresh bacteria, of the liquid in the lower chamber, is necessary to the satisfactory operation of the tank. This separation of the sludge was a step in the right direction. The Imhoff tank was then developed, in which the passage of any sewage downward into the sludge chamber was obviated by the use of slots through which the sludge slipped from the settling compartment and which also was so devised as to prevent the escape of gases to the sewage above. For the escape of the gases generated, vents were provided. The period of detention in the Imhoff tank may be something less than four hours, and the removal accomplished somewhere between 45 and 65 per cent of the total suspended matter. From this type of tank the sludge is removed only at long intervals and generally in a condition so inoffensive that it will not be objectionable when spread upon sludge beds. In fact its character is particularly favorable to rapid drying since the entrained gases which buoy it up when it is first spread upon

the beds, admit of the free passage away of the moisture, and as the gases become liberated and the sludge settles it is left quite porous.

None of the tank treatments so far mentioned, however, provides for the removal of the colloidal matter, or finely divided suspended matter which is capable of being gathered together in clots, or "coagulated." An effort to accomplish this has been made by Mr. Collins, an English engineer, who, in collaboration with Dr. Travis, devised the tank known as the "colloider." In the center of this wooden slats are suspended for the purpose of attracting the non-depositable suspended solids. These sluff off the slats and sink to the bottom, with the result that a greater deposition of suspended matter is obtained than would have been produced in a plain sedimentation tank. The introduction of some chemical like alum or sulphate of iron and lime, into the sewage may also be used to produce artificial coagulation. Some substances which have been used for this purpose are inert and merely aid the colloidal matter to precipitate, while others enter into chemical reactions with the substances in the sewage, throwing out of solution the dissolved chemicals. The degree of clarification by such means depends largely upon the quantity of precipitant used. The amount of sludge produced by this method is large, often as much as 0.5 per cent of the sewage treated.

After the tank treatments, if it is necessary further to remove the fine suspended colloidal matters and to oxidize the organic matter, the effluent may pass to a contact bed. This is simply a concrete chamber filled with broken stone, coke, cinders, or other similar material. This "ballast" as it is sometimes called, serves to attract the colloidal matter very much as do the wooden slats in the "colloider" previously described, and in this gelatinous coating oxidizing bacteria find a favorable habitat. These convert the organic matter into more stable organic and mineral substances, and also the settling solids are strained and retained in the interstices of the filter. Gradually these voids fill up and clog and in some cases after a few years of service the contact material has had to be renewed.

After the bed has become matured, or in other words, when the gelatinous film has been built up by suc-

cessive applications, sewage is applied in sufficient quantities to completely fill the voids in the ballast, and yet slowly enough so that it will not break up and disturb the bacterial jelly. The standing-full period of the bed must not be too long since the supply of oxygen will soon become depleted and putrefaction set in. Experience has shown from one to two hours to be satisfactory. After the sewage has been drawn off by means of the underdrains, the standing-empty or rest period follows, when the bed regains its supply of oxygen and the organic matter left in the interstices of the bed becomes oxidized by the bacteria in the gelatinous film. As this is the period during which the most important biological action takes place it should be extended as long as is practicable.

The Trickling Filter

These beds are often operated in series or in alternation. The effluent from them, however, is not always sufficiently stable to admit of its discharge into some streams where the flow would not afford sufficient dilution, so the trickling filter has been contrived, for obtaining a still higher degree of oxidation. This filter may be constructed with a false floor consisting of grooved channels covered with slabs, to provide free spaces through which the water may drain away. Over the slabs is placed coarse stone of specified size, usually from 1 to 3 inches, and then on this a layer of broken stone, broken slag, cinders or other material, broken stone being most common in this country. The depth of the bed is usually 5 to 10 feet. Through such a bed the sewage is allowed to trickle continuously and as it is delivered by sprays or jets it is continually carrying into the interstices of the bed a fresh supply of oxygen, thus reducing the danger of putrefaction. The action within the bed is practically the same as that in the contact bed, except that the trickling filter is self-cleansing, the oxidized sewage passing down through the bed until it drops through the floor grating into the underdrains.

There is a seasonal variation in the efficiency of these beds which is very interesting. In summer oxidation is more active than during the winter, and with the first warm weather of spring there is usually a



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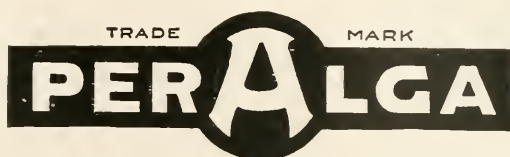
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ganic matter which it contains. The filter should be dosed at such a rate as to insure covering the entire area to a depth as nearly uniform as practicable. As 27,000 gallons applied to one acre, if all held upon the surface, would correspond to a depth of only about one inch it is the practice in some places to dose the beds but once in two or three days, and apply a heavier dose.

Distribution over sand filters is effected either by troughs with hinged wickets, running lengthwise or radially across the beds, or by outlets set at the corners of the beds or at points along the sides of the beds. In many instances the construction of sand filters is impracticable because of the prohibitive cost resulting from the necessity for importing sand, the small volume of sewage which can be treated on a given area, or the high labor cost involved in the removal of the surface mat.

Activated Sludge Process

But the newest method of sewage treatment is that known as the activated sludge process. For quite a number of years a most elaborate series of tests and investigations have been carried on with it at Milwaukee.

Figure 3 gives a general idea of the drainage system of this city—the three streams discharging into the lake at about the center of the picture, in a general way paralleled by a system of intercepting sewers. Prior to the building of these collecting sewers the sewage was discharged into the rivers and some of it directly into the lake. From September 16, 1874, until September 25, 1895, the city took its water supply from a point indicated on the map as the intake of this period. Later the source of supply was extended to another intake nearly three miles from the harbor entrance, or the mouth of the rivers; and more recently still it has been extended to a distance of some four miles. Yet analyses have indicated that the sewage does reach even to this most remote intake.

For that reason and to clean up the rivers the city of Milwaukee undertook the investigation above referred to and is now proceeding to build a municipal plant on a small plat of land known locally as Jones Island, where it will treat the sewage by the activated sludge process.

I have spoken of the removal of the colloidal matter in the sewage, by the use of colloids or by the addition of chemicals. The principle of the activated sludge treatment is similar, except that instead of adding chemi-

cals to produce coagulation sludge which has been "activated" is introduced for this purpose. This sludge is produced in so-called "aëration tanks," with porous bottoms, such as filteros plates, through which the air is forced upward in such quantity as not only to sustain aërobic bacterial activity but also to produce constant agitation of the sewage in the tanks," with porous bottoms, such as clots of the fine suspended matter and colloidal substances in the sewage, results, and this sponge-like clot sweeping through the liquid exerts a straining action upon the colloidal substances. The bacteria, also, contained in the clot feed upon the finely divided matter entrained by it, thus relieving it of its burden and restoring its power of absorption. Were it not for the continual agitation of the liquid in the aëration tank these clots would settle to the bottom, form sludge and clog the air distributing system, but the mixed liquor flows from this tank to a sedimentation tank where such settlement is allowed to take place and from which the accumulated sludge (containing the clots with their active bacteria) is withdrawn and a portion of it returned, by means of pumps, to the incoming sewage before it enters the aëration tanks. The proportion of sludge thus returned is generally about 20 per cent of the volume of the sewage.

In the initial treatment before such sludge has been accumulated, it may require a number of days to secure the requisite quantity and character of sludge for the treatment of the raw sewage, but after the process has once become established and the sewage has been treated with some of the sludge from the preceding treatment, it goes on in a very short period of time—roughly six hours.

At Milwaukee the sewage enters the sedimentation tank at opposite sides, the effluent flowing away over the tops of suitable troughs and out into the lake. The sludge is drawn off from the center through a conical hopper and pipe, a portion being returned to the incoming sewage at a point near the outlet from the screen chamber, and another portion to the sludge recovery process.

If this process be carried sufficiently far the sewage may be converted into a relatively pure water; not a water that is suitable directly for drinking, but one which will not putrefy and from which a very large proportion—perhaps upwards of 95 per cent of the bacteria may have been removed.

Profit in Fertilizer

An interesting feature of this process is that the sludge obtained contains a relatively large proportion of nitrogenous matter, or plant food. There is, therefore, the possibility of utilizing this waste product, and this is the only process which gives promise today of affording a profitable commercial fertilizer. I do not mean to infer from this that enough can be recovered from the fertilizer to pay for the entire process, but it is possible that enough can be obtained to pay for dewatering, drying and disposing of the sludge, which is a very distinct advance over most of the other processes now available.

While the amount of sludge produced by any process will vary materially with local conditions and with the amount of solid matter removed from the sewage, it is recognized that the activated sludge process under all conditions will produce a very much greater volume of sludge than any other process. For the disposal of the major portion of this sludge (or such as is not returned for treating the incoming sewage) there are various methods. At Houston, Tex., sludge lagooning has been successfully utilized.

A Partial Solution

Dewatering has also been tried, and extensive experiments have been carried on in this connection, at Milwaukee. Various types of apparatus have been used—the plate press, the squeeze press, the centrifuge and the vacuum filter. The first of these is formed by a number of cells each made by two adjoining cast iron concave plates brought closely together, to prevent the sludge from squirting out between them, and with their faces covered with cloth. The sludge is pumped in at one end, passes through a central channel, and into the several cells. After pressure has been exerted and the sludge is relatively free from water, the plates are drawn back, one at a time, and the cake which lies between the cloths is dropped out. With the sludge in its most favorable condition for pressing, a cake about one inch thick may be obtained in something like two hours. Sometimes, on the other hand, it takes from four to five hours for the cake to form and then it may be so wet that it can be removed from the cloth only with difficulty and leaves it soiled and smeared. This slimy quality of the sludge has in some instances been counteracted by the addition of acid before pressing.

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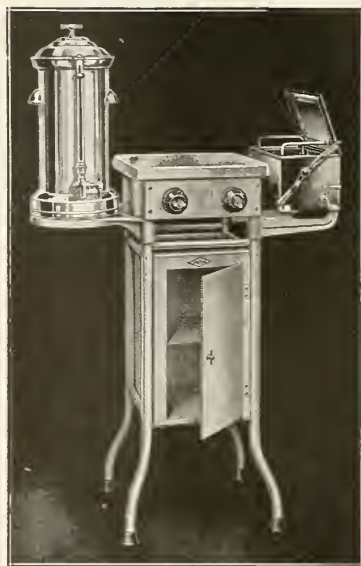


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in principle, consisting of a number of bags, open at the bottom and held by supports at the top. Between each pair of bags a corrugated drainage rack is suspended. Before filling, the bottoms of the bags are forced together to prevent the escape of the liquid sludge, and then the sludge is fed slowly in through small flexible tubes. When the bags are full the inflow is shut off and pressure applied to all the bags by means of end platens, the squeezed-out water escaping through the vertical corrugations in the drainage racks. This method may be carried on with sludge in a less favorable condition for pressing than where the plate press is to be used, but it takes longer, seldom being accomplished in less than four hours.

In one form of centrifuge the sludge flows into a revolving drum open at the top. The cake is formed directly upon the side of the drum which upon completion of the formation of the cake can be mechanically raised and the cake then thrown out of the drum by centrifugal action. The water in turn is thrown upward and escapes over the top of the drum.

In the case of the vacuum filter, which is the machine finally adopted at Milwaukee, the sludge after treatment with acid and heating flows into a box within which revolves a canvas duck-covered drum, so arranged that the portion below the surface of the sludge is under a vacuum. As the water is drawn through the duck into the drum the solids accumulate upon its surface, and as the drum revolves the section upon which the cake has been formed rises above the surface of the sewage and enters into a zone of reduced vacuum by means of which the moisture in the film of cake is somewhat reduced. From this zone of partial vacuum the drum section bearing the cake then enters a zone of steam or air pressure, the pressure being applied to the inside of the drum. This loosens the cake which then passes beneath a knife-edge by which it is scraped from the drum.

Plants Made Attractive

There have been a great many objections to sewage treatment plants. The public does not take kindly to having them located near the cities, and individuals dislike to have them located near their property. In some cases they have proved sources of objectionable odor, and in the case of trickling filters the very large numbers of little moth flies which make their home there, are most annoying in the immediate vicinity of the filter.

But, after all, it is probable that the most serious objection to the sewage treatment plant of today is a sentimental one. If there were absolutely no odor, if there were no flies or anything else which might even suggest objectionable conditions, there would still be a sentimental objection to having a plant for the treatment of the municipal wastes, located near one's property. And so it is important that engineers should take this into consideration and make the plants as attractive as possible. Ordinarily, this does not involve a serious expenditure, and it is well worth the cost.

A Partial Solution

The problems presented to the board of engineers who were asked to advise the Sanitary District with reference to the treatment of the sewage of the North Side of the Sanitary District involved a number of questions, such as the degree of purification which would be required, the location of the plant, and the type of plant which the District should procure. The sewage from this District will be collected at a point along the North Side Channel, by means of sewers which are very deep and very large. To carry the sewage a great distance involved heavy expense, so it was considered advisable to treat the sewage in that general locality, which approximately is west of the city of Evanston.

Various processes were considered and some were eliminated with very little study, because they were entirely impracticable for the local conditions; sand filters, for example, which would have involved an enormous area and an expense entirely prohibitive; and, for the same reason, contact beds.

There were, however, two processes to which serious consideration was given. One comprised Imhoff tanks for removing the coarse materials, with subsequent treatment on trickling filters, for oxidizing the remainder of the organic matter. The other was the activated sludge process.

In view of the proximity of the sewage treatment site to the city of Evanston, and of the certainty that the District in that vicinity will increase greatly in population in the future, together with the importance of providing a comparatively pure effluent to be discharged into the North Branch, the Commission decided in favor of the activated sludge process. This can produce a treated sewage which will be practically clear, free from color, free from odor, and will not cause objectionable conditions in

the channels through which it passes to the Illinois and the Mississippi rivers.

This is an expensive project, involving some thirteen million dollars and, while complete in itself, does depend in a measure upon future development.

In regard to the disposal of the sludge the Commission advised that it be carried a relatively long distance through a force main and disposed of for the time being by lagooning at the westerly portion of the District near the main channel, with the thought that ultimate development of the process of dewatering and drying the sludge might make it practical to replace this measure by a sludge recovery process at some future date. The Commission had no fear, however, that the method which it recommended for immediate use would not prove entirely satisfactory, although some better method may develop later.

An Unpopular Subject

In the matter of sewage treatment there are several difficulties. It is an unpopular subject. No municipality desires to spend money for the benefit of its neighbors, and this is, almost without exception, the case in matters of sewage treatment. Yet this subject must be considered from the broad point of view—that the cities and municipalities are merely arms of the state. The state is the entity which has to do with this problem, and the municipality is simply carrying out the directions which are provided by the state. While the treatment of sewage and the disposal of other wastes is unpopular, much can be done by the engineer to improve the status of these problems. The best of design and the best of operation are necessary to the success of these undertakings. The engineer who acquaints himself with the problems, though he be not directly connected with them in his daily work, can exercise his influence toward assisting in securing conditions which will permit of the best of design, the best of construction, and the best of operation, of which probably the latter is the most important.

A statement which has just been issued by Frank T. Hines, director of the Veterans' Bureau, gives out the figures that approximately twenty thousand more disabled veterans will have been rehabilitated by January 1, 1924. About eighty thousand men are now undergoing training.

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Protection Against Dust and Fumes

(Continued from page 601)

Brass founder's ague is a well-known example of the poisonous effects of metallic (zinc) fumes. It is an acute ague-like attack, coming on usually after exposure to the fumes of molten brass but frequently not until after the man has left the shop and gone into cold air. He suffers from a severe chill, weakness, nausea and then fever, sweating and prostration but generally he is able to return to work the next day and hardly ever considers the attack serious enough to send for medical assistance.

Carbon monoxid, which is found in coal gas, in illuminating gas, and is produced in many industrial processes, is a common cause of both acute and chronic poisoning. The acute form is becoming more frequent and often occurs where gasoline motors are allowed to run in a closed space. The inhalation of carbon monoxid gas causes headache and a sense of loss of power in the lower extremities. There are also dizziness, throbbing of the temples, buzzing in the ears, a sense of weakness, and, in severe cases, loss of consciousness and death.

Benzol poisoning is another industrial health hazard that has become common in recent years. It enters the body as a vapor, irritates the respiratory tract and produces acute and chronic poisoning. In acute poisoning the symptoms are coughing, vertigo, ringing in the ears, vomiting, perspiration, itching, irregular pulse, etc.; in severe cases convulsions, coma and death; in the chronic form hemorrhages in the skin, destruction of the blood cells as well as changes in certain internal organs and in severe cases death.

The foregoing are cited simply as examples of the effects of varying types of fumes upon the body. The list could be lengthened indefinitely.

The methods of protection against the harmful effects of dust and fumes is a matter of great importance. Briefly, we may consider them under two headings: General measures and specific measures.

Means of Protection

As general measures for protection against dust and fumes we have:

(1) *Industrial Law.*—The foundation of industrial hygiene and sanitation rests on industrial law. The history of the control of industrial hazards is the history of the enactment of industrial laws. Industrial laws

must be scientifically sound. Fundamentally, the law is for the protection of the worker but on the other hand, in forming such a law the effect on industry and the cost of production must be considered. The elimination of all dustiness in the work processes where there is a dust hazard may be desirable but there is no scientific reason for such a requirement if the dust itself is not a specific poison.

It should be borne in mind that the enforcement of laws regarding industrial hygiene is largely a matter of police, power of the State and is not a function of the federal government. The function of the federal government in this matter is to make studies and researches and from these the several states may form the proper laws and regulations for the safeguarding of the health of those engaged in industry.

(2) *Law Enforcement.*—Industrial laws are valueless unless enforced. The method of law enforcement in industry is usually through factory inspection and the actual checking up of the efficiency of the protective devices. Competent factory inspection insures the control of industrial hazards and the maintenance of acceptable sanitary conditions.

(3) *Education.*—The worker needs to realize the danger of certain health hazards as well as the employer. Protective measures may be required by law and provided by the employer but if the worker does not understand the necessity for their use much of their protective value is lost. Wholesome, common sense education is the means by which the need for intelligent use of protective measures is impressed upon the workers.

(4) *Scientific Study of Industrial Hazards.*—The correct basis of industrial law rests on comprehensive scientific understanding of the hazards that are to be controlled. The proper control and prevention of the health hazards of industry and their effect upon the health and physical condition of the worker can be obtained only through careful and thorough scientific investigations. The maintenance of adequate industrial sickness records by employers in order to determine the cause of sickness among workers and to measure the efficiency of measures used to reduce health hazards is an important part of the study of industrial hazards.

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It was originally made for schools, to correct and prevent malnutrition. To induce children to drink more dairy products than most of them will drink in plain milk.

The drink proved enormously popular. Millions of bottles are now sold at soft drink counters, and delivered to homes with the milk.

Wherever well known, "400" has become the favorite drink with children.

"400" is a fifty-fifty blend of fresh whole milk and fresh skimmed milk, plus 10% of Walter Jahn's chocolated syrup.

The butter fat content is 2 per cent.

It is blended by the viscolizing process, under enormous pressure, to break up the globules of fat.

The flavor is unique and enticing.

The product is pasteurized, then put up in milk-type bottles branded "400" on the bottle and the cap.

The cap permits drinking through a straw without removal of the cap.

The 7-ounce bottles usually retail at 5 cents. There are also pints and quarts.

Health authorities are requested to investigate this product, as many have already done.

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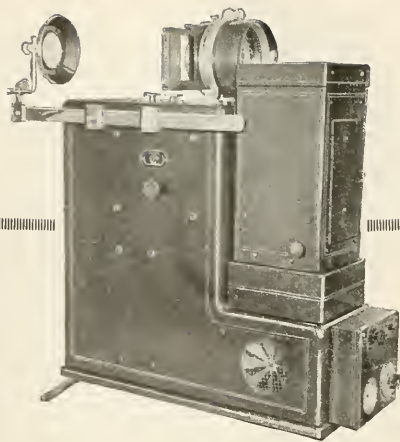
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dust and fume hazards are: (1) General or special ventilation systems which include general ventilation and the collection of dust at the source by means of ducts and exhaust systems. (2) The use of respirators, masks or hoods. (3) Development of manufacturing processes that will largely eliminate the production of dust and fumes. (4) Periodic physical examination of workers.

Mention can be made here of only the last item, periodic physical examination of workers. Such physical examination of workers exposed to health hazards should be made at regular intervals in order to determine any early symptoms of the effects of the dangerous processes or hazards to which the worker is exposed. This matter of making at regular intervals physical examinations, although one of the most important matters in the prevention of health hazards, is perhaps the most difficult to accomplish. Workers in the beginning invariably regard it with suspicion and it is only after long and careful effort that workers are convinced that such examinations are for their own good and are not intended to be used as a means to discriminate against them or to discharge them. After a company has shown that the periodic physical examination given the worker in hazardous processes is intended for the benefit of the worker, experience has shown that the workers become enthusiastic supporters of the plan.

The elimination of health hazards due to dust and fumes from all industrial processes is perhaps impossible but the foregoing suggestions may contain some ideas which it is hoped may prove helpful.

Physical Education Activities of Newark Y. M. C. A.

Twenty-five hundred members of the Newark Young Men's Christian Association regularly use the privileges of the physical department, gymnasium, natatorium, boxing classes, and massage department.

A score of organized groups such as industrial teams, boys' clubs, boy scouts, Sunday school and church teams, Sunday men's organizations and public school teams often use the Y. M. C. A. physical privileges without any expense to them.

In handling this large number of activities within its building, the Newark association has on its physical department staff a director of physical education, three part time gymnasium instructors, two volunteer leader-directors, and one director of

massage with two part time assistants.

From seven to eight hundred members daily use the various physical features—gymnasium, classes, basket ball, track, gymnastics, wrestling, handball and swimming teams.

An interesting part of the association program has been the development of a volunteer leaders' corps. The members of these groups are nearly all qualified to direct large or small classes of men or boys in a complete "gym" class program. There are about forty of these members and they wear a distinctive uniform while leading squads or classes in the department. For the past six or eight years five of these leaders have gone into active work as physical directors, some in public school departments and others in association work.

Corrective gymnastics, Swedish massage, electric baths, aquatic instructions, life saving classes and sex instructions are provided many of those members who desire those special features.

Outside of the association, the physical directors have received generous welcome in industrial plants, insurance, offices, churches, Sunday schools, community centers and elsewhere where they have been instrumental in promoting many programs of noon-hour recreation, social and athletic activities and a comprehensive recreational program.

Wherever physical activities are presented in and around Newark, the Association Physical Department seeks to and does have some part in the conduct of such activities because its committee believes that the Y. M. C. A. must serve everybody, everywhere and at all times to justify the support tendered it by its many friends.

Last year more than one hundred and fifty thousand men and boys in Newark were in some way included in the association physical program, according to information received from Mr. Frederick W. Ball, chairman of the Physical Education Department.

The second report of the Association for the Prevention and Relief of Heart Disease is an account of considerable achievement. Particular interest centers in the establishment of forty-three out-patient classes devoted to the diagnosis and treatment of heart diseases, the opening of convalescent homes to the heart cripple, the work in the public schools, and work connected with suitable industrial placement for those with damaged hearts.



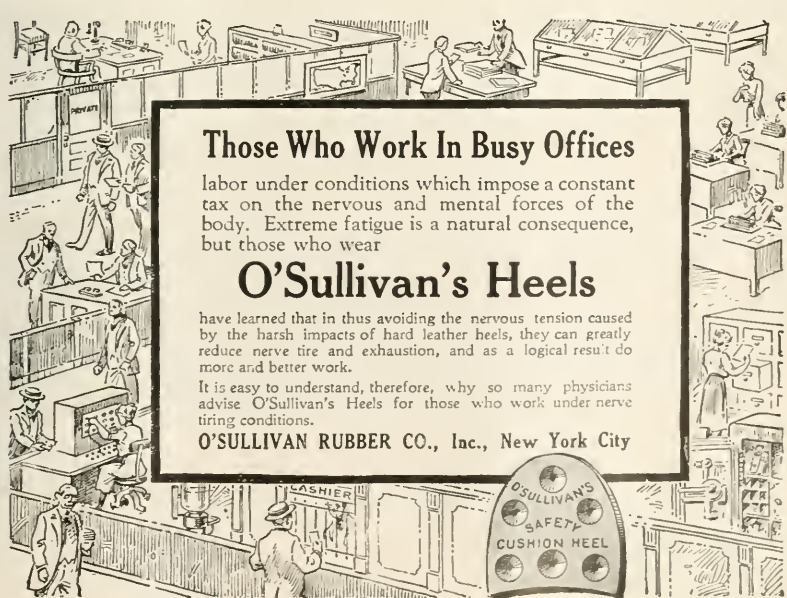
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The illustration shows a dark glass bottle of LAVORIS mouthwash on a tiled surface next to a sink with a running faucet. The bottle has a label with the brand name and some smaller text. The background is a dark, textured wall.



Those Who Work In Busy Offices

labor under conditions which impose a constant tax on the nervous and mental forces of the body. Extreme fatigue is a natural consequence, but those who wear

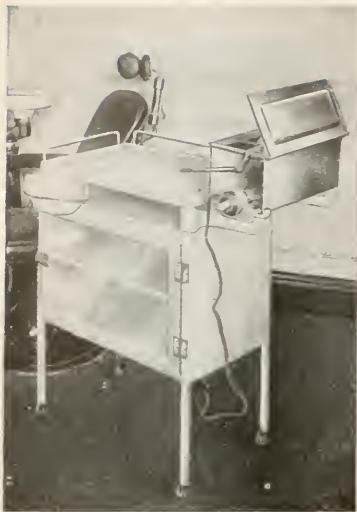
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have learned that in thus avoiding the nervous tension caused by the harsh impacts of hard leather heels, they can greatly reduce nerve tire and exhaustion, and as a logical result do more and better work.

It is easy to understand, therefore, why so many physicians advise O'Sullivan's Heels for those who work under nerve tiring conditions.

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The illustration depicts a busy office scene with several people working at desks. In the foreground, a man in a suit is walking. To the right, a woman is standing near a desk. The background shows more office workers and desks. In the bottom right corner, there is a detailed illustration of an O'Sullivan's Heel, which is a circular rubber heel with several small circular indentations. The text "O'SULLIVAN'S SAFETY CUSHION HEEL" is written on the heel.



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Outbreak of Food Poisoning

An outbreak of food poisoning among Yale University students is reported by Winslow, Hiscock, Rogers and Robinson (*Am. J. Hyg.*, May, 1923, 3, p. 238). The outbreak totaling fifty-one cases was due to *Bact. paratyphosum B* in an egg salad. The lettuce in the salad was apparently not responsible and, though the causative organism could not be detected in the feces or urine of the cook preparing the dish, there were reasons for suspecting that he was at the time a temporary carrier. The disease affected five-sixths of those who ate the dish and "caused an acute gastrointestinal upset, coming on from twelve to thirty-six hours after ingestion, and lasting from three to six days, with headache, abdominal pain, fever and usually diarrhea."

Persistent Diphtheria Carriers

Sumner believes that the use of antitoxin prophylaxis in diphtheria is a "two-edged sword," producing many healthy carriers—those who have never had any symptom of the disease but persistently harbor organisms.

These conclusions were derived from the study of an epidemic among two hundred school boys, in Simla, India. After the epidemic was under control and an interval of two months had elapsed, several sporadic cases led to the examination of 80 of the students who had never had the disease following prophylactic doses of antitoxin. Fifty per cent of these were found to be carriers. (*Brit. M. J.*, May 12, 1923, 3254, p. 808.)

Indices of Nutrition

An interesting study of indices of nutrition has been made by Clark, Sydenstricker, and Collins (*Pub. Health Rep. June 8, 1923*, 38, 23, p. 1239). From a large number of children were selected 506 of native parentage and native grandparents; with no physical defects; and with good or excellent nutrition as judged from clinical evidence. Three standards of weight were then applied to these children who were, as far as a careful physical examination revealed, in good health. According to the Wood standard (height-weight-age tables) 20 per cent were more than 10 per cent underweight; according to Dryer's standard (stem length and chest circumference tables) 13 per cent were more than 10 per cent underweight; and according to Pirquet's "pelidisi" method, 17 per cent were

shown to have a pelidisi of 94 or less.

Many individuals classed as underweight by one standard were classed as normal or, in a few cases, overweight, by one or both of the other standards. "Out of 506 children, 210 were classed as underweight by one or more of the three standards used; of these 210 cases, all three standards agreed on 15 cases as being underweight."

It should be remembered that all these children were selected as the best specimens of health that could be found among school children and that in spite of this fact one-fifth of them were underweight according to the standard most frequently used in schools.

Scarlet Fever in Juvenile Home

Griswold reports (*Am. J. Pub. Health, June, 1923*, xiii, 6, p. 465) on an epidemic of scarlet fever that occurred in a state juvenile home. The outbreak began in a rather unusual manner. One of the matrons belonging to "a peculiar religion sect that denies the existence of disease" advised a sick child not to report to the physician who makes daily calls at the institution. Shortly after the rash appeared the child was secreted in the matron's room "so that the other children wouldn't get the false idea that she was sick."

As soon as the rash disappeared this girl was allowed to mingle with the other inmates and 33 cases developed. Only one of these can be suspected of being caused by an indirect contact or by contact with an inanimate object.

Appalling Death Rate in India

A London Correspondent (*J. A. M. A.*, May 5, 1923, 80, 18, p. 1324) writes that during the decade 1910-1920, of the population in India subject to registration, amounting to 228,500,000, "3,500,000 perished from plague, nearly four million from cholera and nearly one million from smallpox—a yearly average of 800,000 deaths from preventable disease. In addition one million have died annually from malaria, which also is preventable. The general death rate excluding the exceptional year of influenza prevalence, when the ghastly rate of 62.46 per thousand was recorded, in four years of the decade amounted to 30 per thousand, or within a fraction of that figure; in four years this was considerable exceeded; the lowest rate, attained in but one year, was 28.72.

The NATION'S HEALTH

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Special Reference to Industrial and Institutional Problems

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Public Health Developments in Siam*

*A Country Where Causation and Cure of Disease Are Still Greatly
Confused by Belief in Malevolent Influences Rather
Than Sanitary Factors*

BY M. E. BARNES, M.D., THE INTERNATIONAL HEALTH BOARD, SIAM.

LYING as it does outside of what have hitherto been the usual lines of travel, little is generally known of the kingdom of Siam. The history of its peoples has never been extensively studied, but we know that the Thai race in ancient times lived in the western part of China where even today, in the Yunnan Province, large numbers of this race still remain. Chinese records indicate that at a period approximating the time when Abraham set out from Ur of the Chaldees, there was a large emigration of Thai peoples from their ancestral home owing to the pressure of invading Mongols. During the succeeding centuries these peoples gradually moved southward into Camodia and later into what is now called Siam, where they carried the language and customs of their original civilization. They adapted themselves to the peculiar conditions of life in their new home and became, and still re-

main, almost exclusively an agricultural people.

Their agricultural life has been devoted almost entirely to the cultivation of rice. This has been due, among other causes, to three important factors: the physical features

made the people the chattels of the "Chaos," who were absolute rulers in their realms. Under this system individual accumulation of wealth was not altogether to the personal advantage of the individual. The great majority of the people were content

to raise only sufficient food for themselves and their families. He that gathered much had little over (for it was ever subject to the whims of the ruling Chao); he that gathered little had no lack (for as a general rule food has ever been plentiful and easily obtained in this country). The incentive necessary to lead men to work out new methods of agriculture was not provided under this system. Fortunately, the people throughout the entire country have in recent years been freed entirely from this



Filter plant at Bangkok Water Works.

of the land, which make rice-growing the easiest form of agriculture; the sparsity of the population, which has always enabled the people to escape the stern struggle for existence obtaining in China and India; and the traditional form of government, which

repressive form of government, and under the stimulus of more favorable conditions, a new spirit is rapidly developing which is destined to affect the whole nation.

These things are mentioned here because of the light they throw upon

*The observations upon which this paper is based were made with the support and under the auspices of the International Health Board of the Rockefeller Foundation.

ferent as to what may be beneath their houses. The simplicity of their habits of life constitute a further problem. Whole communities dwell in boats on the rivers, and the remainder of the population contributes to the pollution of every stream. Yet many of Siam's millions are at present dependent for their drinking water upon these same streams which they pollute. If people insist upon dwelling in what are for many months of the year veritable swamps, it is not a simple matter to recommend practicable sanitary provisions by which health conditions may be improved.

The greater part of the village population lives in bamboo houses which are durable, comfortable, and economical. It is difficult, however, to protect these houses against rats, and no practicable method within the financial reach of the owners has yet been evolved to prevent the ingress of flies and mosquitoes.

In spite of the fact that from their earliest history the Thai people have never known any form of government other than an absolutism, they are remarkably jealous of their individual rights. It is futile to attempt to coerce them. They are open to reason, however, and when they have been thoroughly convinced that measures are desirable, it is not difficult to persuade them to adopt reforms, provided these are presented to them in the proper manner. It requires the activity of the local government officials exerted in a paternal rather than an authoritative, spirit to initiate the reforms; but these officials have plenty to do along other lines and do not always give the emphasis to health matters that is needed. Progress is thus necessarily slow.

Although undoubtedly there is in the country a public opinion that on certain subjects is quite definite, there is very little opportunity for the expression of this opinion. Consequently, it is not as yet a factor in the support of health work. The education of a definite public conscience relative to health

matters is one of the fundamental tasks that lie before the health authorities of the country.

The paucity of properly trained health officers is a serious handicap.



New sanitary latrine as installed in villages.

Opportunities in other lines have been so much greater than in public health work that the number of men entering this field has been small. Health work has therefore been developed under a heavy handicap. As one administrator remarked recently, "We have men occupying positions which call for far greater ability than these men possess, but what can we do? It is like putting in a five horsepower engine where a fifty horsepower engine is needed. The little engine does the best it can, but it can only be expected to do work up to its limit. With the reorganization of the medical school now possible through the help of the Rockefeller Founda-

people. This has led to a great influx of other races who find excellent opportunity for gain in the country. The Chinese far outnumber all other foreign peoples in Siam, and each incoming ship from China brings a load of immigrants. Most of these settle in the vicinity of Bangkok where they establish living conditions similar to those prevailing in their homeland. The better class of these industrious people have built up excellent commercial ventures, and practically control the exportation of rice. The lower classes transform the unoccupied plots of ground into vegetable gardens (fertilized with offal), piggeries, duck farms, and similar remunerative nuisances, to the disgust of those compelled to be their neighbors, and to the despair of the health authorities, who at present are powerless to abate the nuisances.

Development of Health Work

Keeping in mind the conditions mentioned above, the specific advances in health work are much to the credit of the country, even though the health officers who are building it up are impatient over the enormous amount that remains to be done. Health work may be said to have only begun, but it has made a good start.

During the past year, an amalgamation of ministries took place resulting in the establishment of a really national department of public health, which, albeit imperfectly, reaches the greater part of Siam. A scheme of reorganization that is now being effected fundamentally changes the emphasis from curative medicine to preventive medicine. The scheme provides for the carrying out of such health activities as are national in their scope and such as the department is at present in a position to carry on under the following five sub-departments:

(1) Central administration. Under this head is included Government Medical Depot and the administrative control of importation and distribution of all habit-forming drugs—(Continued on Page 737)



Old method of watering the streets in Bangkok.

tion, we hope to have an increased number of capable men."

The heaviest immigration is from China. The Thai people are an agricultural rather than a commercial

The United States Government and the Disabled

Nineteen Class "A" Dispensaries Exist Along With Seventeen Dispensaries of the Class "B" Type. The New York Clinic Described Is a Model for All the Others

By W. F. LENT, DISTRICT MANAGER, DISTRICT NO. 2, U. S. VETERANS' BUREAU, NEW YORK CITY.

AFTER the ecstasy of the armistice had subsided and our soldiers, sailors and marines were gradually being discharged from the service, the realization dawned on our government that there were new responsibilities that it would have to meet. Millions of ex-service men were preparing for their reabsorption into civilian life and thousands of them were disabled in some form that would prevent re-employment. It was up to our country to see that these men were aided in their re-entry into the industrial, commercial, and professional worlds and to see that those disabled were cured, where humanly possible. It was the latter phase of this problem that impressed the country at large. It was a problem that remained as such for three years after the armistice. The United States Public Health Service and the contract hospitals were doing the best that they were able, but having no dispensaries for the treatment of ambulatory cases was a big handicap. It was recognized that the establishment of clinics and additional hospitals would eventually be an absolute necessity so that, with the passing of the Sweet Amendment to the War Risk Insurance Act, on August 9, 1921, calling for union of the Federal Board of Vocational Training, the War Risk Insurance Bureau, and Veterans' Relief functions of the United States Public Health Service into one body, to be known as the United States Veterans Bureau, it was decided to prepare immediately for establishment of these clinics. The Sweet Amendment, among other duties, charged the new Bureau with the responsibility of pro-

viding proper medical care and treatment, as well as compensation and vocational training, for all men or women disabled in service since April 7, 1917.

Then began the long and arduous preparations for the founding of these clinics. The great medical leaders of

aries of three different classes, the class of each depending upon the population of the center to be served. It was determined, after a survey, that there would be nineteen Class "A" dispensaries, all with the most complete equipment for every type of disease known to science, and manned

by the highest type personnel, so that all ambulatory cases would be accorded thorough and proper treatment. These Class "A" dispensaries exist in each of the fourteen districts in addition to five more in Pittsburgh, Baltimore, Kansas City, Detroit, and Los Angeles, large cities that are not the sites of District Offices. There were to be erected seventeen dispensaries of the Class "B" type (with not quite so extensive or complete an equipment as in the "A" class) in Providence, Newark, Buffalo, Rochester, Indianapolis, Louisville, Cleveland, Columbus, Milwaukee, Omaha, Salt Lake City, Portland, Spokane, Oklahoma City, and Houston. Approximately 104 dispensaries, corresponding to a standard Class "C" clinic, were also to be installed.

This plan was finally passed on and adopted in January, 1921, and the work of installing the clinics begun. Included among

the nineteen of the "A" type was that one to be developed in the district office of New York City. It was decided to equip this particular clinic with the highest human and scientific agencies that could be found and to establish it as a model for all other Class "A" Veterans Bureau dispensaries. A site for the clinic was selected on the eighth floor of the Grand Central Palace building, the highest type of personnel engaged and plac-



Mold room in orthopedic section, showing Veterans' Bureau trainee making mold of patient's deformity.

the country were called into consultation to outline a program that would be suitable as a basis for such service in each of the districts of the Bureau. There were fourteen of these districts situated in the largest cities of the country, each one having jurisdiction over a large territory, through which were scattered sub-district offices. It was the plan of the promulgators of the clinic program to create approximately two hundred dispens-

ing of the most modern scientific apparatus begun. Its installation proved to be most laborious as much had to be done at night due to temporarily insufficient elevator service in the building. There were times when the most delicate of apparatus had to lie in the street for twenty-four hours at a time. Partitions had to be razed, others erected to fit the scientific floor plans devised, in order that space, light, and air might be utilized to the fullest.

Finally, however, in September, 1922, after months of intensive effort, clinics (Medical, Eye, Ear, Nose, and Throat, Orthopedic, Physio-therapy, x-ray, Dental, Tuberculosis, Psycho-Neurosis, Surgical, and Laboratory, etc. in all) were declared ready for operation. There were appointed thirty-one general examiners, dentists, nurses, physiotherapy aides, laboratory workers and a clerical force making a total clinical personnel of one hundred individuals, with a salary list of \$150,910 annually. To ensure the most expert care of our invalid veterans a staff of medical and surgical specialists was organized to consult with the clinic physicians, and these specialists include some of the leading members of the metropolitan medical profession.

The dispensary of the United States Veterans' Bureau at New York City is, therefore, one of the most advanced and complete in the world, with many features wholly new in treatment, and the story of its development and installation is a record of devoted, but unsung effort on the part of men who worked tirelessly, day and night, in order that it should become the great human salvage plant that it now is.

Conspicuous in this dispensary is its "physio-therapy" unit that embraces all the newer approved physical means for bettering those injured or ill. Everyone who visited our war hospitals must recall the good results following extensive resort there to

these advanced aids in treatment, and the civilian public as well as ex-service men now are befitting from their general introduction. Let us visit the Hydrotherapy rooms of the

ty of low and high tension electrical currents are used to stimulate and regenerate muscles and nerves, is another recently broadened out development of present day physiotherapy.

Here, through carefully induced, delicate contractions, these new currents increase the tone of enfeebled muscles and very gradually overcome the atrophy that arises from longtime enforced disease of injured limbs.

The largest portion of this interesting physiotherapy clinic is found in its "general treatment" hall, where applications are made for a wide range of affections bone and joint disabilities so numerous in our battle-injured, bronchial diseases, pleurisy and other chest maladies, nasal disorders, diges-

tive ills, and ailments involving almost every part of the human body. In this section, for example, there is the diathermy treatment with high frequency currents that cause through-and-through heat penetration found so useful in a great variety of medical and surgical conditions; in regeneration of bone defects after accident or operation. This treatment is furthermore utilized here to eliminate waste products of the body to build up strength after debilitating sickness, or injury and, not of least importance, to stabilize blood pressure. Other features of the room's equipment are the deep therapy lamps that do away with heat rays but allow the light rays to penetrate, being of great aid in neuritis, sciatica, and kindred painful affections.

Another section of the physiotherapy unit is the Ultraviolet Ray Room where air and water cooled ultraviolet ray lamps are applied to kill bacteria in local infections, for skin lesions, and to create a general upbuilding and tonic effect in debilitated states of the human body. The

ultraviolet ray lamp is a delicate instrument, so that all treatments given by it are accurately gauged as to time of application and distance from the body—(Continued on Page 739)



The dental clinic showing the various units.

clinic in which are seen various sprays, showers, the Scotch douche, friction tables for manipulative and exercising methods, cabinet body electric light baths. These modalities are found valuable for tonic and eliminative purposes in a wide range of conditions, surgical as well as medical. In another section of this department are given whirlpool baths to the extremities, in which heated water in constant commotion acts as a gentle massage-like exercise for tender and painful scars; this is pre-



A corner of the shoe-making room in the orthopedic unit.

liminary warming up of wasted parts of the body so that subsequent electrical or other applications may be fully effective.

The galvanic rooms, where a varie-

The Training of Health Workers

The Contribution of the New York State Department of Health in the Training of Local Health Officers, Public Health Nurses, and Other Administrators of State Health Service

BY CHARLES C. DURYEE, SANITARY SUPERVISOR, NEW YORK STATE DEPARTMENT OF HEALTH; DIRECTOR, POST-GRADUATE COURSES IN INFECTIOUS DISEASES AND PUBLIC HEALTH, ALBANY MEDICAL COLLEGE, ALBANY, N. Y.

WHEN the New York State Department of Health was organized and established in its present form by the public health law enacted by the legislature of 1913, one of the first objectives set by Commissioner Biggs and the Public Health Council was the development of higher standards of training for local health officers, public health nurses, and other officials charged with the administration of the state health service.

The great increase of knowledge in recent years as to the modes of transmission of disease and the means of its prevention, had resulted in new views and new practices in the domain of preventive medicine and public health administration. Obviously, one of the first things to be done if the public health service of New York state was to be thoroughly modernized was to give local health officers and other health workers an opportunity to secure a systematic knowledge of the recent developments in the field of sanitary science. It was also important that they should obtain at once a thorough, practical understanding of the new state sanitary code which had been enacted by the Public Health Council in order to establish uniform and modern health regulations and practices throughout the state.

This need of promoting the instruction of health officers had been foreseen in the drafting of the new public health law which included a provision authorizing the Public Health Council to prescribe the qualifications of health officers and public health nurses, as well as of sanitary supervisors, directors of divisions, and other technical employees of the State Department of Health itself. The new law gave the State Depart-

ment of Health much more effective control over local health administration, but it was believed from the first that the best results would be secured not so much by direct intervention as by efforts to inform and assist the local health officers in the understanding and performance of

Council and of the Department since 1914.

Educational Requirements

As the first step toward advancing the educational standards of health officers, the Council accordingly enacted regulations to take effect November 1, 1916, prescribing the qualifications for health officers in New York state. These regulations as subsequently amended and now in effect require that local health officers shall have the following qualifications:

They shall be physicians and have complied with one of the following requirements:

(1) They shall have received the Degree of Doctor of Public Health in a course from an institution of learning recognized by the regents of the University of the State of New York; or

(2) They shall have received a certificate in public health from an institution of learning recognized by the regents of the University of the State of New York; or

(3) They shall have taken a correspondence course in public health of one year with at least one week of practical demonstrations in laboratory and field work, both correspond-

ence course and demonstrations to be approved by the Public Health Council; or

(4) They shall have taken a course in public health covering a period of at least eight weeks of which not less than twenty days, not necessarily consecutive, of five hours each, shall include instruction at an educational institution, or under the auspices of the State Department of Health in practical laboratory and field work with lectures and prescribed reading, such course to be approved by the Public Health Council; or

(5) They shall have submitted evidence satisfactory to the Public Health Council of special training or practical experience in public health work, with examination if required by the Council.

There is a further provision that

The New Health Viewpoint

HEALTH education for health workers as for the masses must be a continuous process. Standards are being constantly raised, and no system of health administration can be considered as completed and unimprovable.

Unpreparedness here is a costly error. The varied and extensive special knowledge of official, nurse, or sanitarian must nowadays be supplemented by the trained faculty of unifying local health factors into a related whole which makes preventive methods practicable.

Chance cannot be depended upon to develop the up-to-date executive. He is the product of a consistently thought-out program.

their duties. Most of these men were busy, practising physicians who had enjoyed but little opportunity to undertake post-graduate work in the larger medical centers, and so keep up with the progress of sanitary science. It would have been impracticable, indeed impossible, to establish ideal educational qualifications to be enforced over night among these health officers. The expedient and sensible course was to give these men every possible facility for increasing their knowledge without seriously interrupting their work, and at the same time gradually to raise the educational requirements through a period of years. This has been the consistent aim of the Public Health

under special conditions set forth in writing by the local board of health or other appointing power, or by the proposed health officer, these requirements may be waived by the Public Health Council. Experience has shown that without such a provision for exemption from qualifications it would sometimes be impossible to appoint any health officer in a community served by only one physician.

Health Officers' Instruction

Having thus laid down educational requirements for health officers the next step was to offer new educational opportunities to these busy men. To this end the Public Health Council as an emergency measure induced several of the medical schools in New York state to provide short courses of instruction for health officers. By 1915 such courses had been established in Albany with the cooperation of the Albany Medical College, in Syracuse with the Medical College of Syracuse University, in New York City with the University and Bellevue Medical College, and in Buffalo with Buffalo Medical College. In arranging these courses it was always held in mind that the health officers were in the main part-time officials, usually engaged in the practice of medicine in their communities; consequently every possible effort was made to conserve their time and keep down the expense. This was done by extending the course over a considerable period of time, and limiting the attendance to two days a week. A single experiment in giving a straight six weeks' residence course was not repeated because it was never again possible to interest a sufficient number of health officers. This conclusively demonstrated the necessity of the other plan.

Courses organized in this manner have been given at these four medical centers at intervals since 1914. In addition it was found desirable to organize correspondence courses for health officers who lived so far away from the cities mentioned as to make attendance at a "residence" course impracticable. One such correspondence course was started at Albany and another in New York City, in cooperation with the University and Bellevue Medical College. The latter course has been especially successful, and has been given continuously since 1915. A student may matriculate and commence this course at any time. It includes one year's reading course with frequent examinations supplemented by one week of resident instruction and field work. Health

officers to the number of 255 have received certificates in this course and fifty-seven are now taking it.

In all the courses a thorough study is made of the public health law and special emphasis is laid upon the administrative features of the state sanitary code. Demonstrations of the various modern laboratory tests are given with a view to making clear their value and their limitations. This is considered necessary because many of the health officers are physicians who, although good clinicians, were graduated before the science of bacteriology had reached its present state of development. In fact, at the time when many of the present health officers attended medical schools there was little or no opportunity for them to obtain any training in preventive medicine. As an example of the eagerness with which men of this type have taken advantage of the special courses offered by the Department it may be mentioned that out of a class of fifty who recently completed the course at Albany, four of the members who received a mark of 100 on the final examination had been graduated for thirty years or more, and a fifth had been seven years out of medical school.

A Typical Course

A more concrete idea of the character of these courses may be obtained from the announcement of the course as recently given by New York University. Although primarily intended for health officers, this is open to any qualified person interested in public health problems. The work is divided into fall and spring semesters with an interval of three months during the winter to accommodate health officers in rural districts, for whom traveling is difficult at this time. The course covers the work of the health officer in all the usual phases of preventive medicine, both technical and administrative. The required textbooks, which include the well-known standard works of Park, Rosenau, Chapin, Mac Nutt and other authorities, are supplied to enrolled students at 25 per cent discount. The fees include a matriculation fee of five dollars for those not previously matriculated at the University, and a tuition fee of twenty-five dollars. Students of previous years in any of the public health courses are invited to attend as many sessions as possible without additional charge, and this privilege is often used. Certificates are given to those who upon examination, successfully complete the course. The following random selections from

the twenty-four days program indicate the nature of the instruction given:

- Introductory lecture.
- Lecture and demonstration of general bacteriology and technic.
- Symptomatology, epidemiology, and control of the enteric diseases.
- Milk and milk products, production, pasteurization, etc.
- Diphtheria; laboratory diagnosis; the Schick test; antitoxin.
- Child hygiene, prenatal care, infant care, care of pre-school child, school child.
- Tuberculosis: Early diagnosis, treatment and control.
- Manufacture and use of smallpox virus and rabies virus.
- Smallpox: Differential diagnosis, epidemiology, etc.
- Diseases of adult life.
- Duties of health officer with the insane.
- Rural Hygiene.
- Industrial Hygiene.
- Routine duties of a health officer.
- Hospital management of communicable diseases; disinfection.
- Parasitology of the blood and the intestinal tract.
- Epidemiology.
- Vital Statistics.

Appraisal of Results

The response to the action of the Department in offering these courses has been most gratifying; and the public health training of a majority of health officers of the state is without question substantially better today than it was eight years ago. During these years a total of 458 health officers have completed either the residence or correspondence course, while in addition ninety men have taken the course in more than one year, making a total of 548 health officers, who have completed the instruction. At the present time ninety-six health officers and other physicians are actually taking the course, or are enrolled. By way of comparison, it may be mentioned that the total number of local health officers in the state is now 966, these men covering 1,466 local health districts.

It is clearly evident from the statements of those who have taken these courses that they feel that they have been distinctly benefited not only in connection with their public health duties but in their general practice of medicine. The Department believes that the cause of public health is also advanced when men in general practice take this opportunity to gain a broader view of preventive medicine, even when they are not health officers, and each year an effort is made to enroll students from this group.

Instruction for Nurses

Another noteworthy forward step which dates—(Continued on Page 741)

The Fat-Soluble Vitamin In Relation to Health

By H. C. SHERMAN, PROFESSOR OF FOOD CHEMISTRY, COLUMBIA UNIVERSITY, NEW YORK CITY.

THE existence of a fat-soluble substance or substance essential to the normal functioning of the body was established independently in 1913 by McCollum and Davis¹ and Osborne and Mendel^{2,3} through experiments in which it was found that young animals on food mixtures alike in all other respects would continue to grow and thrive or would soon stop growing and shortly thereafter die, according as the fat in those food mixtures was butterfat or lard.

At the same time, Osborne and Mendel recorded³ the fact that animals suffering from lack of this fat-soluble substance became subject to an eye disease which has since played an important part in the study of this dietary deficiency and is variously designated in different writings as ophthalmia, xerophthalmia, keratomalacia, and conjunctivitis. Both because an infection is involved here and because the characteristic susceptibility to this eye disease is accompanied by an increased susceptibility to other diseases also, the pathological effects of this dietary deficiency are less clearcut than those of either vitamin B or vitamin C. Since, however, in the case of each vitamin the characterization of the substance depends as yet chiefly upon the physiological or pathological effects observed to follow the use of a diet deficient in the vitamin in question, it seems necessary to attempt to summarize the results which have been observed to follow the use of a diet deficient in fat-soluble vitamin. These observations have been made chiefly upon rats, not as is sometimes supposed because the rat is particularly susceptible to the lack of this vitamin, for as a matter of fact both rabbits and chickens have been found^{4,5} to need relatively more of it than does the rat, but because at the time of the discovery of this vitamin the rat had already become well established as the most practicable laboratory animal for feeding experiments for which he is suitable. There is no reason to doubt, and ample reason to believe that the omnivorous rat is a good representative of mammals generally, including man, in his need for fat-soluble vitamin and in

the effects which follow the use of diets which lack it or are too poor in it for the support of optimum nutrition and health. That similar results follow the lack of fat-soluble vitamin in the food, has been shown experimentally for species varying as widely as the fowl^{6,7}, the rabbit^{7,8}, the dog⁹, and the pig⁹, and there is much clinical evidence showing that the same is true of the human species^{10,11,12,13,14,15,16}. According to McCollum¹¹: "There are several instances of the occurrence of conditions described in the literature as xerophthalmia, which seem to be beyond question cases in which the disease has occurred in man as the result of specific starvation for the dietary essential, fat-soluble A." The records particularly referred to are those of Mori¹⁰ in Japan, whose cases of xerophthalmia occurring among children at a time of food shortage could be cured by feeding chicken livers (liver being rich in fat-soluble vitamin) and those of Bloch¹², whose cases among the children of the Danish poor also responded to the feeding of foods rich in vitamin A. Wells¹³ found in Roumania, and Dalyell¹⁴ in Vienna, cases of children suffering from eye trouble which was cured by cod-liver oil and most probably arose from deficiency of fat-soluble vitamin in their food. The xerophthalmia observed by Bloch¹² among Danish children was regarded as one phase of their condition of malnutrition. Here the eye disease was quite definitely related to deficiency of vitamin A in the diet since it was cured by feeding whole milk or cod-liver oil, and in 1918 the disease nearly disappeared from the community upon the general introduction, by government action, of butter into the dietary of the poorer people. Bloch studied the seasonal incidence of the disease and found it to be most prevalent in the season of most rapid growth. This he construes as further evidence that the eye trouble arose from shortage of a substance essential to growth, the shortage and therefore the incidence of the disease being most severe during that part of the year in which the demands of growth are greatest. Bloch also suggested that vitamin A may be neces-

sary for the formation of antibodies against infection and may be continually used up in this way as well as in growth.

Space is not available for a fuller discussion here of the evidence of diseases arising from shortage of fat-soluble vitamin in widely separated species including man. The reader who desires more detail will find it in the publications above referred to. In our judgment there is no room for doubt that animals generally, including man, need fat-soluble vitamin quite as much as do rats, and that the rat is both a practicable and a representative animal with which to study this nutritional need.

We shall therefore continue to draw experimental evidence regarding the physiological significance of the fat-soluble vitamin chiefly from work with the rat, confident that the same or similar effects will result in man also from the use of diets unduly poor in this vitamin.

Effects of diet deficient in fat-soluble vitamin.—When a diet lacking fat-soluble vitamin but adequate in other respects is given to a young growing rat, growth continues for a longer or shorter time according as the animal has a larger or smaller store of this vitamin in his body at the beginning of such an experiment. After growth ceases the animal may or may not remain at stationary weight for a time, then there usually sets in a loss of weight and a condition of general decline accompanied by increased susceptibility to bacterial infection. This lowered resistance results in a large proportion of the experimental animals developing the characteristic disease of the eye^{3,17} and it has been repeatedly found that diet poor in fat-soluble vitamin leads to weakness in other respects as well as to this increased susceptibility to eye disease. Osborne and Mendel¹⁷ report diarrhea and diminished appetite as frequently resulting from food poor in fat-soluble vitamin; and they have definitely correlated this deficiency with the occurrence of phosphatic renal calculi (bladder stones) among their experimental animals.¹⁸ The formation of these bladder stones they attribute to abnormal reaction

arising from local infection to which the lining membrane becomes susceptible as the result of the fat-soluble vitamin deficiency. McCollum and Davis^{1, 19} and also Drummond²⁰ report increased susceptibility to other infections including lung disease among individuals whose diet is poor in this vitamin. Steenbock, Sell, and Buell²¹ confirm this and emphasize also the susceptibility to bronchial troubles and abnormalities of the skin. In this connection they have written^{21, p. 92}:

In addition to the inflammation of the eyes, we have observed in many animals, large and small, an apparent resistance to infection of the eyes even though continually exposed by contact to severely infected animals, all on a fat-soluble vitamin-free ration . . . Many of these individuals succumb to respiratory infections, in fact we have been led to think that possibly a certain immunity to infection of the eyes is thus conferred. The incidence of respiratory infections as part of the syndrome induced by fat-soluble vitamin deficiency was described by McCollum in his early work. It may consist, as we have observed, of a nasal or bronchial catarrh or pulmonary infection with mucous or purulent exudate, at times even resulting in hemorrhage. Animals thus afflicted in the early stages of the disease sneeze and cough violently but later as the inflammation becomes confined more to the lungs the cough subsides and dyspnea becomes very pronounced with the slightest activity. Such animals fail very rapidly and even with the introduction of fat-soluble vitamin into the ration rarely show normal growth subsequently. A fat-soluble vitamin deficiency is also far from being conducive to normal cutaneous nutrition so that very often . . . evidence of dermal malnutrition makes its appearance. The fur appears bushy and thin, cutaneous growths occur on the tail, ears and nose, and finally sores, which heal with difficulty, appear on the feet, limbs, and body; all bear testimony to this state of malnutrition.

In subsequent work²² Steenbock and his associates have correlated still further the occurrence of respiratory disease with deficiency of fat-soluble vitamin in the food.

Quantitative investigations at Columbia University are showing²³ that animals whose diet has been relatively poor in vitamin A actually contain less of this vitamin in their lung tissues than do those whose food has furnished the vitamin in more liberal amounts.

Evans and Bishop²⁴ found that diets containing enough fat-soluble vitamin for growth and protection from eye disease may still require enrichment with this vitamin in order to enable the animal to meet the added demands of reproduction.

With so much direct experimental evidence of widespread weakening of the body when the intake of fat-soluble vitamin is low, it is not surprising that this dietary deficiency should have been assigned as a contributing factor in such diverse diseases as rickets, tuberculosis and pellagra.

In the case of rickets investigation has been especially active and has led to the discovery that the substance by virtue of which codliver oil prevents or cures rickets, while it is fat-soluble and is regarded by most writers as probably of the nature of a vitamin, is not identical with vitamin A; for codliver oil can be oxidized until its vitamin A is destroyed, as shown by the fact that it will no longer cure xerophthalmia, and yet the substance which prevents and cures rickets still remains. Recent contributions to the study of rickets and of the antirachitic substance are so numerous that to cite them individually here is quite impracticable. Reference is therefore made to the comprehensive review by Park²⁵ which includes an extended bibliography. Thus the study of rickets has both developed and subdivided the concept of fat-soluble vitamin with the result of setting off an "antirachitic substance" from the "antiophthalmic substance" with which the term "vitamin A" had come to be regarded as synonymous.

Whether the antirachitic substance is a vitamin in the sense that it is a normal constituent of foods and an essential factor in normal nutrition, or should rather be regarded as a pharmacological agent concerned not with normal nutrition but specifically with the pathological condition which exists in rickets, is still an open question. The fact that the subject is under active investigation at the present moment, so that any attempt to summarize the evidence might be rendered obsolete any day, makes it seem best not to pursue this point further at the present time. The recent literature of rickets is so voluminous and records so many important advances in our knowledge of the disease that it might well form the subject of a separate paper.

Reference should also be made here to the interesting observations of Hart, Steenbock, and their colleagues indicating a favorable influence exerted by fresh green foods upon the economy of calcium in the animal body^{26, 27, 28}. This they attribute to the presence in the green food of fat-soluble vitamin and the beneficial effect of this vitamin upon the effi-

ciency with which the body can make use of the calcium which it receives. The effects are particularly noteworthy in the maternal organism which is subjected to the relatively heavy demands involved in the nutrition of the fetus and the production of milk. From statistical studies Abels²⁹ has also concluded that fat-soluble vitamin is of special importance in the growth of the human fetus and the proper development of the mother.

The likelihood of serious depletion of the mother's store of vitamin A through the extra demands of pregnancy and lactation, and the greater incidence of pellagra among those women who are undergoing or have recently undergone this strain, is one of the reasons for suspecting that a low vitamin A content in the food is a factor in susceptibility to this disease. This might readily be true even if pellagra be found to involve infection by a definite organism as Jobling and Arnold have recently made probable³⁰.

While it would lead too far afield to enter here upon a discussion of the relations of food supply and nutrition to the incidence of tuberculosis and pellagra, it seems well to mention the suggestion which McCollum has so frequently emphasized, that dietaries poor in vitamin A are unfortunately rather frequent throughout America and Europe and that people weakened by such diet are more readily attacked by the diseases to which they are chiefly exposed in the locality in which they live, whether this be tuberculosis, pellagra, or some other disease³¹.

Certain it is that the foods which have been found by long experience to be especially beneficial in feeding both for the prevention and cure of tuberculosis are milk and eggs, both of which are rich in fat-soluble vitamin. There also seems to be, in the otherwise somewhat conflicting conclusions reached by different students of pellagra, a fair agreement on the fact that inadequate milk supply is closely correlated with occurrence of pellagra in the regions in which it is prevalent, and that liberal use of milk in the diet is especially efficient in the prevention and cure of the disease.

A liberal allowance of fat-soluble vitamin certainly makes for a higher degree of health and vigor. In experiments which are now approaching completion in the writer's laboratory³², two groups of rats of identical family histories have been kept under conditions alike in other respects but with dif.—(Continued on Page 744)

Recent Advances in Physical Education

Moral Ideals Are the More Readily Translated Into Right Behavior When Through Consistent Training the Healthy Body Becomes the Willing Servant of a Healthy Mind

BY M. G. BRUMBAUGH, NATIONAL PHYSICAL EDUCATION SERVICE, WASHINGTON, D. C.

WHEN I was a pupil in a public school my teacher did not know what to do with my body. It was definitely in the way. It interfered with the task the school was supposed to do. Could I have in some way checked my body in the ante-room or cloak-room and gone only with my mind into the school-room, I think my teacher would have welcomed me with a distinct sense of relief, for my body was his *bête noir*. It did not behave as he wished. He punished it, made it stand in corners with face to the wall, laid the rod of correction rather vigorously upon it, and in numerous ways made it unwelcome.

All this is changed. The whole boy is now welcomed in school. His body is no longer to be "kept under" but educated and fitted by systematic habits to be the ready and willing servant of the mind. It was held by the Greek schoolmaster that a healthy body is a willing servant, while a weak body is a cruel tyrant. To make strong, healthy bodies the Greek boy went as regularly and as long to the gymnast as to the tutor.

St. Jerome in his letters on the right education of a young woman said to her mother, "I would have your daughter so educated that having a body she should not know it." This sums up not only the moral but the physical aim of education.

When the world-war came to us and our boys between twenty-one and thirty-one were called to the colors, we were appraised suddenly of the very great need of a sound and universal system of physical education. The rejects because of physical defects will always remain as an indictment against a school system that failed to conserve or advance the physical vigor of the race. Competent authority asserts that fully three-fourths of our school population suffer from some physical defect.

To detect these defects, to remedy

them, to conserve the increment of health that is brought to the school, and to set up a systematic and rational system of training that will establish health habits, these are the aims and needs of the wiser educational activities of the day. The essential need for this was not created but revealed by the world-war statistics.

In our larger cities, where opportunities for bodily exercises and health-producing activities are most restricted, departments of physical education have been established. The results have been most pronounced. Attendance has been increased. Study has been made more easy. Discipline of a corrective nature has been reduced in large degree. Intellectual progress has been promoted in a definite way. Moral ideals have been translated more readily into right behavior.

In Philadelphia, where in 1908 physical education was introduced in all the public schools, the intellectual average of all pupils was, in one year, advanced almost nine per cent. In other words, there was a great gulf between teacher and pupil, a gulf of physical defects, and not mental inferiority. When these physical defects were removed the pupils' mentality was reached and the succeeding gain in the intellectual life of the city readily achieved. This has been confirmed in many urban school districts. It most definitely establishes two facts of great value to educators and to parents: (1) that many so-called mental defectives are not in any sense mentally defective. They simply suffer from physical impediments of one sort or another, most of which are subject to correction under proper and competent diagnosis and treatment. It is manifest that for many reasons the earlier in the life of the child these physical limitations are removed, the easier the task, the better the status of the race; (2) that sound physical condition is essential

to right intellectual development.

The National Physical Education Service at Washington has set itself the altruistic aim of universal right physical training in all the schools of the republic. It has wisely sensed the fact that this matter is a national concern quite as much as it is a local concern. To give emphasis and meaning to its aims, this service has promoted in Congress an Act known as the Fess-Capper Bill, the aim of which is that in all the states the physical welfare of the child shall be as carefully conserved as its mental progress. Federal aid logically follows as an aid to the states in quickly carrying into operation, wholly under State control and direction, a system of universal physical training, and provides that this aid shall be used only to train teachers and to compensate teachers. Thus the nation emphasizes the fact that the trained teacher is the paramount need of the schools.

This service has also stimulated wise citizens in the several states to secure legislative enactments to conserve and promote universal physical and health training in all the schools. Pending final action by Congress, which action will surely be had at the next session of Congress, the importance of this service has been recognized by the enactment of laws for universal physical education in at least thirty-two states. Others will likely follow this splendid example.

It is a source of satisfaction to the friends of the republic to note that at least one great political party has definitely declared in favor of National Physical Education with Federal aid. All the great organizations of forward-looking and unselfish citizens have endorsed the movement and are aligned with its active supporters. The great women's organizations, the teachers of the Republic, the Rotary, Kiwanis, Lions and related groups, and the American Legion are all solidly supporting the movement. It may well be that in

the next advance the Legion, whose members saved the republic from its foreign foe, may lead in the campaign to save the Republic from its internal foes—disease and ignorance, and the almost endless line of foes that troop under the sooty flags of disease, ignorance and neglect.

More significant perhaps than this is the action of the Secretary of War in calling to Washington in November 1922 a large group of leading citizens from all parts of the republic to consider the necessary steps to be taken to remedy existing physical defects of our citizenry and to plan a nation-wide physical education service. The needs of the nation led to this great conference. Its findings are

now with the President. Undoubtedly when Congress convenes, the Chief Executive will have practical and pertinent advice to lay before our National Legislators.

Even more significant, it seems to me, is the nation-wide interest taken in this movement by leading individuals. One cannot in this space name any of these. But in press, pulpit, forum, and friendly conference the fact is proclaimed that if we are to be mentally and morally the people we long to be, we must lay the basis for all sound intellectual advance and all sane moral guidance firmly and surely in the physical sanity and wholeness of our entire population.

Red Cross Dental Clinic

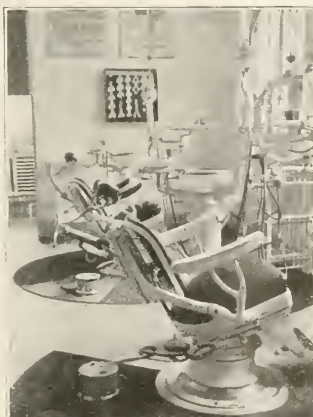
A DENTAL clinic for children, manned by a voluntary staff of dentists, was opened in the Children's Hospital, Portland, Me., in May, 1918. Located in the hospital building and sponsored by the hospital authorities, it was carried on for two years, or until May, 1920, at which time the operation of the clinic was taken over by the local chapter of the Red Cross.

Under this new régime a full time dentist was employed. Nurses from the various hospitals in the city act as assistants serving for a period of weeks, the district nurses do the follow up work in the city, and two local dentists give their time part of one afternoon each week to the extracting clinic.

The clinic rooms are on the first floor of the Children's Hospital. They include a well lighted and equipped room containing two dental chairs. At one end of this room is a small extracting room and off the other end of the main room across a small hall, is the office of the director. The clinic is open every week day from nine till twelve with the addition of Saturday afternoon. All patients must be recommended for treatment by some person to whom this privilege has been granted. Since the clinic is practically free, a five cent fee being charged for each visit, application cards are given out only to those who will see that the privilege of dental care at this price will not be abused. In practice the district nurses make practically all investigations and recommendations for admission for treatment. They are the "feeders" for the Red Cross Dental Clinic.

The application for enrollment in the clinic card reads:

I (parent or guardian) hereby apply for registration and authorize treatment and if necessary the administration of a general or local anesthetic for . . (child's name) . . and agree



View of the Red Cross Dental Clinic for Children at Portland, Me. The doorway visible at the right opens into the extracting room.

to fulfill the requirements of *keeping the teeth clean—and to return for treatment periodically as required.*

On the reverse of this card are blanks for recording facts relating to the family. With this card signed and the young patient admitted and a case card filled out visits are made only by appointment. Those who persistently break appointments are barred from the clinic. There is always a long waiting list, far more than the operator can care for, and

there is no need to go into the highway and search for patients. Sometimes the parents send children to the clinic, who never arrive, perhaps a movie appealed more strongly. In such cases the father has been known to have used the old fashioned treatment for the child and the child has been allowed to return to the clinic, but, when neither parent nor child is interested, that opportunity is given to the one next on the waiting list. There were on this list approximately 450 names in March, 1923.

During the year ending March 31, 1923, the records show 3,856 visits made by the 1,811 children enrolled at the clinic. Fillings for the year total 3,526 and all other operations 3,542. In his annual report to the Red Cross, Dr. Horatio C. Meriam, director of the clinic, says, "These figures show some variations from those of last year. The number of completed cases has taken a big jump. The waiting list grows, and it is unfortunate that we are unable to take care of more children, as some of these children have been waiting nearly a year . . . The falling off in the number of fillings and extractions is undoubtedly due to the policy started a year ago of confining our work chiefly to children under ten years. The number of six year molars extracted this year is about two hundred less than a year ago, which shows that the efforts made toward the preservation of this important tooth are bearing fruit."

On entering the clinic one sees in the hall a fare box, that piece of mechanism more frequently encountered on entering a street car. This is loaned to the clinic by the local street car company and in it each patient is supposed to deposit five cents each time that a call is made at the clinic. Of course this rule is not without exceptions and no child is turned away even if the nickel is missing.

The experience of this clinic has again demonstrated that the volunteer staff is not the best way to secure results. With sufficient volunteers recruited to adequately cover the field, their number gradually dwindles and only the few faithful ones remain. It is hoped that the Portland Red Cross Dental Clinic will soon be able to add another full time dentist to the staff. Yet with a limited number of workers it offers today the only opportunity in the city for dental care of children whose parents are unable to meet the financial burden of the private dentist's fees.

The Sanitary District of Chicago

Sewage Problems Grow with the Growth of a City Requiring New Installations at Least Every Ten Years. Chicago's Problem is International.

By LANGDON PEARSE, SANITARY ENGINEER, THE SANITARY DISTRICT OF CHICAGO, CHICAGO, ILL.

IN THE thirty-four odd years since its organization, the Sanitary District of Chicago has built the main drainage channel from the Chicago River to Lockport, which reversed the flow of the Chicago River, and also the two collateral channels, the North Shore and the Calumet. As a result, the sewage has been removed from the entire lake front of Cook County, some thirty-four miles long. The Chicago River has also been

widened and straightened and obstructions removed, and new bridges built so as to make a channel with a minimum width of two hundred feet between dock lines. Further, a power house has been built at Lockport, on a fall of thirty-four feet, to recover the power running to waste, whereby electric power is generated to light the streets and parks of Chicago, run the sewage pumping stations and treatment works and other municipal utilities. This power is a by-product solely, as the primary object of the main channel was the reversal of the Chicago River and the disposal of the sewage of the Sanitary District by dilution.

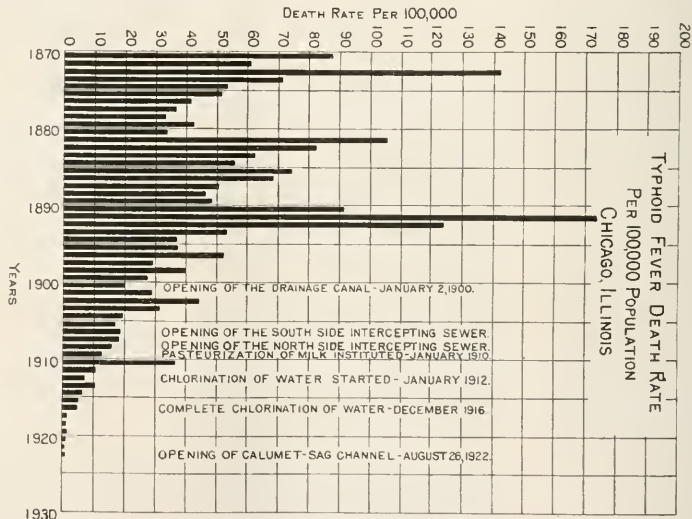
The charter of the district provides for the dilution of the sewage with a minimum ratio of 3 1-3 cu. ft. per sec. per 1,000 people. On this basis the capacity of the channel, namely, 10,000 cu. ft. per sec. would care for three million people. Owing to the steady growth of the city of Chicago

in amount of about seven hundred thousand people every ten years, and to the additional load produced by the big packinghouse industry, and the Corn Products factory at Argo, an additional load equal to over one and one-half million people has been placed upon the Main Channel over and above the wastes of human origin. Consequently, the capacity of the channel for dilution has been exhausted. For a number of years the

many years, that is, the amount of diversion from the lake. The canal was planned for a diversion of 10,000 second feet. A few weeks prior to the opening of the canal, authority was given to the Secretary of War to regulate navigable streams, and under this power a permit was issued to the Sanitary District for a flow of 4,167 cu. ft. per sec., a figure based solely upon the navigable velocities in the Chicago River, then a narrow and

crooked stream. Since that time, the Sanitary District has spent upwards of sixteen million dollars in widening and straightening the river and removing the obstructions. Believing that this work, in the aid of navigation, merited an increase in the diversion, various attempts have been made to secure an increase in the permit from the Secretary

TABLE I.—A GRAPHIC PICTURE OF THE REDUCTION IN THE TYPHOID DEATH RATE WHICH PARALLELS THE EFFORTS TO RENDER SAFE THE WATER SUPPLY.



trustees of the Sanitary District have recognized the need of supplementary methods of treatment to reduce the load upon the channel. In forwarding this program, intercepting sewers have been built, pumping stations erected and sewage treatment plants constructed and put in operation. By all this work, the typhoid fever death rate has been remarkably reduced and the water rendered comparatively safe. (Table I.)

A Discordant Note

In this program there has been one discordant feature which has worried the Board of Trustees for a great

of War, but without success. However, in order to comply with the requirements of the state law under which the district operates, the flow has been increased so that the present time about 8,500 second feet are flowed. Inasmuch as Mr. William H. Taft, when Secretary of War, had doubts as to the powers of the Secretary of War in the premises, a friendly suit was started to determine the rights of the Secretary of War in connection with the construction of the Calumet Sag Channel, which suit was later widened into injunction proceedings to determine the legality of the diversion, originally heard by

Judge Landis and then turned over to Judge Carpenter in the Federal Courts. A decision was recently rendered by Judge Carpenter, enjoining the District from taking more than 4,167 C.F.S., but the effect and operation of the injunction has been stayed by supersedeas during the pending of the appeal to and until the final decision of the Supreme Court of the United States. In the meantime, in order to work out a solution of the whole controversy, the Sanitary District has suggested that a bill be introduced in Congress to legalize the diversion of ten thousand second feet, and control the level of the Great Lakes by regulating works at the outlets of Lake Erie and Lake Ontario, and to construct supplementary sewage treatment works, so as to reduce the load in twenty-five years to one half the present load of human population upon the channel.

The agitation against the diversion of 10,000 C.F.S., is largely based upon the false premise that more water is diverted from Lake Michigan than should be permitted to conserve the best interests of the port cities around the Great Lakes and navigation. The facts of the case are that the lake levels are constantly fluctuating, in accordance with the laws of nature. Daily and seasonal fluctuations occur of far greater moment than any lowering of level ascribable to the Sanitary District diversion.

Reducing the diversion will not cure the difficulties which are claimed to occur. The only correct solution of the lake level problem is the regulation of the outflow to hold back the excess water in the Spring until Fall. This can be done for around two and one-half million dollars. The Sanitary District has offered to pay whatever the works may cost.

Present Program

The sewage treatment program now before the Sanitary District based on a diversion of 10,000 C.F.S., will require the expenditure of about \$100,000,000. Should the diversion be cut to 4,167 C.F.S., an additional expenditure of over \$25,000,000 will be needed for sewage treatment and upwards of \$100,000,000 for water purification. Thus an additional expenditure of \$125,000,000 will be en-

tailed, which will not help the lake level problem materially, whereas the expenditure of only \$25,000,000 in regulating works would do a real service and permit the lake levels to be effectively controlled.

With the facts before them it would be a simple matter for engineers to adjust the lake level problem in a short time, for the principles are entirely clear, but when it is necessary to harmonize the interests of the different states affected, as well as the Federal Government, the State of Illinois, the Canadian Government and others, not only state, but national and international policies are involved.

During all the discussion and litigation, the Sanitary District has been

ple. Other contracts will follow.

In the operation of the three treatment works the sewage of over 156,000 people is being actually handled today on a working basis. The activated sludge and sprinkling filter plants produce a high grade effluent in which fish can live, which requires no dilution. In addition from the activated sludge process, material is being recovered which is actually used for fertilizer by various agriculturists. This material contains about 5 per cent nitrogen on a dry basis. Growing tests made during the present season will give actual data from various localities on many crops, not only cotton, but peonies, roses and various kinds of vegetables. The park boards are trying the sludge on lawns. As a result an advance has been made in the sludge problem, because heretofore until the activated sludge process was developed, the sludge had such a low nitrogen content that it was movable with difficulty and was usually

TABLE II.—SEWAGE WORKS OF THE SANITARY DISTRICT OF CHICAGO.

Works	Population Served	Date in Service	Type of Plant
Morton Grove.....	1,127 1922	Dec. 9, 1914	Imhoff tanks, covered sprinkling filter and secondary tank.
Des Plaines River...	40,000 1930	Aug. 1, 1922	1 in. 1/16 in. x 2 in. screens; grit chamber; activated sludge.
Calumet	150,000 225,000	Sep. 22, 1922	1 in. screen, grit, Imhoff* tank.
Greenview	568	Under construction	Imhoff tank. Sprinkling filter, and secondary tank.
North Side	800,000	Under construction.	Activated sludge.
West Side	1,430,000	Future.	Activated sludge.
Southwest	1,230,000	Distant future.	

steadily working on the problem of sewage treatment. The condition of the Illinois River demanded relief. In the sewage treatment program since 1909, two distinct lines of investigation have been followed, one on domestic sewage, the other on industrial wastes. Owing to the magnitude of the problem and the unusual character of the waste, experimental studies were carried on in four testing stations at a total expense of over five hundred thousand dollars to demonstrate how best to handle domestic sewage and packinghouse, tannery, and corn products wastes.

As the engineering studies developed, the division of the Sanitary District in seven major projects became evident, (Table II) together with a number of minor isolated plants for outlying villages where intercepting sewers would be too expensive at present. Of the projects the Des Plaines River and Calumet have been built and are in operation. A small plant at Morton Grove is also in service. The work on the North Side project is actively under way, the first contract having been let on August 9th, for approximately \$5,600,000 for a portion of the activated sludge plant to successfully handle eight hundred thousand peo-

dumped.

In the control of the plants, a staff of chemists and sanitary engineers are engaged, so that from the mass of data accumulated, each new plant can be improved. Sanitary surveys have been made of the Illinois River and its tributaries by the Sanitary District and recently for a year a joint survey was conducted with the U. S. Public Health Service. The results should add materially to the knowledge of the self-purification of streams.

Many of our citizens have supposed that the Main Drainage Channel solved forever the problem, but the old Main Channel is a machine, and like any other machine, living or inanimate, has a definite capacity for work. This capacity was exhausted several years ago, necessitating the construction of supplemental works. From the standpoint of the future, as long as Chicago continues to grow, there will be a sewage problem before it, necessitating every ten years the completion of additional facilities larger than are now required for the City of Baltimore or Milwaukee alone. That is the problem before the Board of Trustees of the Sanitary District of Chicago and the people of the Sanitary District.

State Institutions for Indigent Crippled Children

Describing the Minnesota Plan. Minnesota, Massachusetts, New York, Nebraska and Iowa Now Maintain Separate Institutions for Educating and Restoring Crippled and Deformed Children

BY CARL C. CHATTERTON, M.D., ST. PAUL, MINN.

MINNESOTA was the first state in the Union to appropriate money for the care of indigent crippled and deformed children. The exact date when interest was first manifested in the founding of the Minnesota State Hospital for Indigent Crippled and Deformed children will never be known. The first record of the need of such an institution is found in the proceedings of the fifth and sixth Minnesota Conference of Charities and Corrections. In the year 1896 Jessie Haskins, a slender crippled girl, properly instructed, read a paper before that body on the need of a state institution for the care of crippled and deformed children. The following year Dr. Arthur J. Gillette appeared before the body with a paper "The Duty of the State to Its Crippled and Deformed Children." The same year Jessie Haskins went before the state legislature to plead for the establishment of a state hospital and school in which crippled children like herself, whose parents were too poor to pay for treatment, might be cared for and educated. Her plea brought action largely because it was backed by an offer of free treatment professionally of all children who might come.

The offer was made by Dr. Arthur J. Gillette, and the same year a bill was introduced and passed which provided for the care of those who would come. Dr. Hastings H. Hart, who was then secretary of the State

Board of Charities and Corrections—now with the Russell Sage Foundation—gave his warm approval of the project.

This bill was not passed without some effort because at that time there was no such state institution or hospital for the care of indigent crippled and deformed children, nor was there a law in the United States—or in the world so far as we know—that could be used as a precedent, and the state legislature was loath to take up with a new and untried institution or system.

The bill had but one object in view, and that was the care, relief, and cure of the poor crippled children of the state of Minnesota, who, if they were not already so, would eventually become objects of local charity or wards of the state.

It was with surprise that the general legislature was informed that these children would be cared for free of charge by physicians and surgeons, and how well this has been done we must leave to your consideration.

Project Takes Form

On April 23, 1897, a law to provide for the care and treatment of Indigent Crippled and Deformed Children was approved and an appropriation of ten thousand dollars made. From this small beginning the state now has an institution of two hundred beds. The hospital grounds of twenty-three acres, a gift from the city

of St. Paul, adjoins a beautiful four hundred acre municipal park. The total cost to the state for buildings and equipment at Phalen Park approximates \$345,000. The institution is filled to capacity and has a waiting list of patients for admission. Two thousand eight hundred eighteen have been cared for in this hospital, and now one thousand nine hundred twenty-eight are under supervision in the out-patient department. The daily per capita cost averages about \$1.75.

The need of such an institution, I know, is apparent to every layman or physician whether he lives in the city or in a country community. City children receive, through free dispensaries, charitable institutions and visiting nurse associations, far better care than the indigent child in a country community. The crippled child in the country must receive his care through the county, charitable societies, parents, or friends and, recently, the county nurse. In many instances these sources of support have responded and the care so given to the child is commendable. The patient has often been sent to clinical centers where he could have the advantage of treatment by men trained in special lines of surgical practice, the county or friends paying the hospital and surgeon's fee as well. The country physician makes many visits and does his best as a general practi-



Minnesota State Hospital for Indigent Crippled and Deformed Children, St. Paul, Minn.

MINNESOTA'S STATE CARE FOR CRIPPLED INDIGENT CHILDREN, ST. PAUL



Fig. 1.—Sewing, knitting and bead work make long hours spent in bed seem not so long. Fig. 2.—Improving the mind as well as healing the body. Fig. 3.—There is a hospital orchestra for the ones with a talent for music. Fig. 4.—Folk dancing as a pleasant diversion. Fig. 5.—Physiotherapy, under skilled supervision for the boys and girls.

tioner, but often the child is some distance from him and home surroundings are anything but desirable for a cripple. Special apparatus is practically out of his reach. Good nursing, operative work, hygiene, and even nutritious food necessary for a favorable result in many cases is impossible.

Many physicians throughout our state have given freely of their time in caring for indigent children and many wonderful results accomplished even outside of a hospital. The greater number of cases, however, require hospital care and when our state institution was started there were few hospitals in Minnesota outside of the larger cities. In either case, whether the child comes from the city or the country, education of the crippled child is nearly impossible except through an institution where both the deformity and the disease is treated, and at the same time the child makes some progress in education and training.

State Care Preferable

The advantages of a state institution over a private institution are many. In its beginning the object of our state institution was to cure and educate and not to see how many could be cared for. No one individual has any advantage over another because he is placed there by a society, a corporation, or friends who contribute liberally to the institution. The waiting list is not transgressed because of solicitous friends. There is no political influence necessary in securing admission to the institution. No one is discharged except when there is no longer need of hospital treatment. Never has a case been turned away when there is further chance of improvement. Even when the result was most unpromising, the child has been taken care of until the end, because we felt we could better relieve his suffering than those at home.

Education of Crippled Children

Until very recent years the education of crippled children in the United States has been in the greater part sadly neglected. A crippled child is not a sick child and incapable of instruction, nor is he a normal child in whom strenuous exercise and hard work is a good medium of keeping him well. His place is between these two, and he will do best with quiet, restful, supporting measures, his mind occupied with tasks not too tedious which serve to make long hours pass more quickly but which in-

still knowledge which will be useful to him when he is ready to leave the institution and take his place among normal individuals.

Many of the children enter the state hospital when young, even before school age, and it is with these children that the good effects of institutional education must show. We expect these children to leave even better equipped than normal children, and to arrive at home able to carry on general school work with children of their own age and mental qualities.

Recent investigations at the State Hospital for Indigent Crippled and Deformed Children have shown us that crippled children, with few exceptions, passed with higher average than children of the same age attending public schools. That is, on an average, the crippled children were found to be from one to four years in advance of children of the same age under normal conditions. With the older children, who come in after they have had more or less training, the problem is more difficult. Imagine a boy or girl sixteen years of age who has never attended school, or one whose education has been only one or two years in public school, or whose entire training has come from mingling with other children in the home who attend school.

We, as orthopedic surgeons, know that in addition to restoring the limb or function we must, at the same time, insure that independence which will assure the patient of his own well being and blot out his dependence upon others. If educational and training methods are not used when the child has his medical and surgical care, then the greater part of our work is for naught and the child is hopelessly outclassed in mental, moral, and physical attainments, and he still remains a parasite upon society.

The average patient stays at the hospital nearly a year. The paralyzed or tuberculous case may stay five years. At present the discharge from the hospital depends only upon the surgical cure. However I am free to inform you that the time is not far distant when the discharge from the hospital will not depend entirely upon the surgical cure, but upon certain mental and moral requirements as well.

The hospital now offers what would correspond to the first eight grades of a common school. It is rare that one comes to the institution who has attained this grade, but if more advanced, provision is made for him. A cripple has greater need of a good

elementary education than a normal child, as the latter has greater opportunities of acquiring knowledge. He can run about and almost insensibly imbibe knowledge. The crippled child needs to have it brought to him. The principle of preliminary education should be thorough enough so that the child can take up some vocation, and in the end become self-supporting.

At the last legislature in Minnesota, a bill was presented and passed granting three hundred dollars a year for special instruction to any crippled child, provided at least five children in any given community received this instruction. This beginning can but stimulate the work in the public school and in special schools for crippled children and will be the means of support of a large school near the present hospital. A considerable sum of money has already been raised through private sources for the beginning of this school and we feel it will not be difficult to interest our legislators when they see the great good of special training that can be given to the physically handicapped.

Vocational Training

The cripple is barred from many lines of work, but in a large number of industries there are many branches that offer hope for those physically impaired. The vocational training offered at the state hospital is not unlike that offered in the average high school course, the object at the present being, not to train the child for any special line of work but to teach him to use his mind and body so that he will become self-reliant, self-thinking, and capable of accomplishing tasks by his own efforts.

The different kinds of work actually taught are many. A course in manual training, including actual labor in the instrument shop, carpenter work, gardening, basket-making, leather work, rug making, and many other arts are taught the boys. Dietetics, actual preparation of food used, sewing, fancy-work, home hygiene, and millinery are included in the work for girls. Some of the boys are very apt in needle-work and dietetics, and some of the girls excel in basket and rug-making. Stenography, bookkeeping, designing, and many other fields offer development for such children, but before we can offer these subjects we will need a larger corps of teachers, and materials, and more adequate room. The field seems almost unlimited, and we believe—(Continued on Page 748)

The Railway Accident Problem*

The Thirteen Million Licensed Automobiles That Share the Highway Privileges With the Railroads Must Render Cooperative Effort in Reducing the Death Rate From Crossing Accidents

BY CHARLES E. HILL, GENERAL SAFETY AGENT, NEW YORK CENTRAL LINES, NEW YORK CITY.

THE railway accident problem includes all the difficulties and perplexities that are encountered in the promulgation and execution of any efforts which have for their purpose the elimination or reduction of accidents. One of the outstanding problems of this country is the frequency of accidents. The fact that a life is snuffed out by accident in the United States every seven minutes should cause all red-blooded Americans to rise up as a unit and insist that this terrible sacrifice shall cease. Such needless wastes of human life is a challenge to intelligent citizenship, and it is particularly obnoxious to those who have a pride in their country's leadership among the civilized nations of the world.

The railroads are contributing so great a share of the toll of death and injury from accidents that they must not only do their part to relieve the distress and suffering which inevitably follows in the wake of accidents, but they must assume the leadership in the elimination of the large percentage of preventable accidents from their toll of casualties. The majority of our steam railroads are recognizing the situation and are ready and willing to assume their full duties in the premises.

What the Casualties Are

Without introducing elaborate statistics I want to call attention briefly to the record of the five years ending with 1921, which will indicate the magnitude of the problem with which we are confronted. In the five year period ending December 31, 1921, the total number of casualties on the railroads of the United States was 846,732 of which number 39,305 were deaths and 807,427 were injuries. The total number of casualties are made up of 12,780 employees killed and 715,222 injured; 1,479 passengers were killed, and 35,529 injured, and 25,046 other persons killed and 56,676 injured.

The casualties to employees con-

stitute approximately 85 per cent of the total number occurring on railroad property. These figures mean that one employee is killed every three and one-half hours and that one employee is either killed or injured every three and one-half minutes. Expressed another way it means that about one employee out of every fourteen is either killed or injured each year. These facts ought to be sufficient to insure the whole hearted support of every employee on the railroads of this country as they are the ones most vitally concerned. It is they who are contributing of their flesh and blood to the field of slaughter a substantial portion of the entire number resulting from railroad operation.

Fully cognizant of the enormous life wastage resulting from casualties to its employees in the United States each year the railroads of this country are at last realizing the seriousness of the problem. We must meet the issue squarely, analyze the causes of accidents and apply the remedy. Before any success along the lines of accident prevention can be expected there must be cooperation between the employer and employee. They must realize fully that the safety of life and limb is paramount to anything else and that both must at all times work together to the end that safety will become an integral part of railroad operation. Safety committees, usually composed of supervisory officials and employees in the rank, have a commanding position in this important field and opportunity to perform real services to their fellow employees is of incalculable value.

A good, live chairman surrounded with an active committee can reach out and come in contact with employees who need their suggestions or advice, either through lack of experience or by reason of their thoughtlessness and indifference, and can set them aright and put them on the path that will keep them from danger. Likewise, the committee can cover their entire territory with respect to its physical condition and

take such action as will bring about corrective measures. Too many safety committee meetings are held in a perfunctory manner. Also there seems to be a disposition to give the greater portion of the time to physical conditions rather than practices, whereas the latter cause produces the most of the accidents. This preoccupation with physical conditions is only natural because this was originally the greatest field for safety work in the correction of physical conditions. This field still exists, but not nearly to the extent it did several years ago.

Create Safe Habits

One of the greatest agencies by which accident prevention can be accomplished is through education. Education has much to do with the molding of the mind which is reflected in the daily life of the individual. Education teaches the safe way to do things. Its influence is continuous. The part it plays is of inestimable value. If a man always does that which he knows to be right, takes the course and follows the method he knows to be safe the problem now confronting us would not be so serious.

The human mind is subject to whims and is not too readily susceptible to reason. The characteristic reactions formed early are difficult to change. Habits formed in childhood tend to become fixed so that when the individual has reached mature years they are an integral part of his life and are practically unmodifiable.

This is the most difficult aspect of the accident situation. Science may develop means by which physical characteristics can be changed but no effective way has been found that will change the habitual reactions of the individual excepting by constant and persistent teaching. The remedy must be continuous and applied with fortitude and patience.

I have great faith in the future. I believe the system of education, the teaching of safety in the public schools as is now in vogue in several of the large cities will lay the founda-

*Condensed from an address before the third annual safety Supervisors' School of the Chicago Safety Council, Chicago, May 28, 1923.

tion for the men and women of the future so they will become imbued with the spirit of safety and make it a part of their ethical code. Great credit is due to those who have labored so earnestly to have safety become one of the fundamentals of our public school system.

There may be some who object to teaching the principals of evolution but no opposition arises to making safety a fundamental part of the basic knowledge that is to be acquired in our public schools, and we can expect as a result of such teaching that succeeding generations will show a gradual but positive improvement in the habits of the individual to the extent that accidents may become the exception rather than the rule. As a result of this process we will see in the future a reduction of casualties far beyond our expectations.

Safety Supervision

Supervision will accomplish results where education has not made its impression on the individual. It is rather an adjunct to education. Those who have to do with the supervision of men or those who are in direct charge of men have it within their power to practically eliminate the accidents from those under their care. A foreman, or one in a supervisory capacity in charge of men, has responsibilities and opportunities of tremendous importance. A good foreman is one who practices and preaches safety, one who instills the principles of safety in his men, one who is alert and observing of his employees in respect to safety.

To have the proper foreman, one who can and will prevent accidents and preserve his man-power; we must have at the head of the departments an official who is willing to give support. His influence for good or evil percolates through the various executives to the men immediately in charge of the class of men, the nature of whose work or the recklessness of whose habits substantially contributes to the increase of casualties. Safety must be made a part of the day's work. It must be instilled in the hearts and minds of those men who have to do with the supervision of men. These are the ones who hold a position of trust. These foremen should be trained in safety and should qualify in its application. The heads of departments have it within their power to see that such men as have been described and no others are in positions of that kind.

When the head of a department is

thoroughly in accord with safety and when he is lending his support to the movement in a wholehearted fashion his attitude will reflect in the men under his jurisdiction and so on down to the man in direct supervision of the employees. The spirit of safety is so manifested in those in direct charge of men and its influence is so great that the most skeptical are convinced of the benefits resulting from this influence.

It is difficult to leave this feature of the subject without laying particular emphasis on the importance of not only the support of the official but this support should be aggressive and with the same interest and zeal manifested in the conduct of any phase of railroad operation.

We must achieve the attitude that good railroading cannot be accomplished without the elimination of accidents. That it is as important to prevent injuries as it is to prevent damage to equipment or to other railroad property.

Nature provides a remedy for a number of physical ailments, it also applies punishment for the violation of its laws which is in the form of pain and suffering. The time may come when a remedy will have to be applied to aid in accident prevention. Many forms of disease that were at one time prevalent are no longer with us. The death rate in this country as a result of sickness has been materially reduced and longevity has been increased through scientific study and the application of the knowledge thereby acquired. We have already reached the point where illness is as a rule unnecessary and where men will continue as active at eighty years of age as they did two decades ago at the age of sixty years.

All of this has resulted from an application of the things gained from years of scientific study. Man has unconsciously disciplined himself. May it not be advisable for him to at once stop and take an inventory of his daily acts as they affect himself or his fellowmen? Railroad employees who are making safety a part of their work do not care to be associated with other employees who are habitually careless any more than they care to come into contact with a contagious disease or with the things that are likely to cause sickness. Those who are careless and thoughtless, for their own benefit as well as for the good of their fellow workers, may be aided in saving themselves and others by being held accountable for their acts causing or contributing to an injury or death.

Human Life Cheap

The time must come when accidents resulting in personal injury or death will be considered at least with equal importance to accidents resulting in damage to property. Officials and employees should recognize the fact that injury and death are not to be considered necessary or inevitable to railroad operation. Let those who are habitually careless realize that men of that type are a menace to themselves and others and are not desirable employees.

The time is already here when service and safety are synonymous in successful railroad operation. Both apply with equal force in the discharge of full duty to that great army of railroad employees as well as to the public at large.

Analysis of the causes of accidents precedes intelligent remedy. The number of casualties, particularly to employees during the five year period mentioned means little without an analysis of the causes leading up to these accidents. Statistics show that only about 2 per cent of the entire number of accidents to railroad employees are classed as unavoidable. This leaves 98 per cent of the entire number which should be subject to control. In making further study of this class of accidents we find that their causes are chargeable to two elements: (1) improper practices or methods of doing work, and (2) improper or unsafe physical conditions.

When organized safety work was inaugurated on the railroads twelve or fifteen years ago it was found that through the lack of any systematized effort a large percentage of our casualties were caused by defective machinery and improper conditions in the yards and at other places on the railroads. Since the physical situation on the railroads has undergone such a marked improvement we now find that about nine out of every ten casualties result from improper or unsafe practices and methods of doing the work.

Such a substantial portion of the number of casualties emphasizes the tremendous importance of this cause, nor are we to lose sight of the fact that even though accident may be chargeable to the unsafe manner in which the injured employee or one of his co-workers performed their work. Further analysis may disclose that failure to perform this work in a proper manner as directly due to the lack of supervision. This forcibly brings out the prime importance of educating—(Continued on Page 754)

Heating Systems for Mercantile Establishments

A Description of An Indirect System Recently Installed for the R. H. White Company, Boston, Mass.

By R. R. HAMMER, ASSISTANT ENGINEER, CHARLES H. TENNEY & Co., BOSTON, MASS.

THE following article is a description of a modern centralized heating and ventilating system such as is used in many large public buildings and department stores. A sectional diagram describes a typical system of this kind with centralized control which has recently been installed in the department store of R. H. White Company, Boston, supplanting an old indirect heating installation, Charles H. Tenney & Co., acting as engineers for the above installation.

In considering the heating and ventilating for a public building or department store wherever large areas are to be heated and at the same time supplied with fresh air, the greatest difficulty encountered has been the inability to procure a constant and reliable circulation of properly heated fresh air. In order to accomplish this, a variety of systems have been used from time to time with varying success. A former and very common method was in the use of indirect radiators set in the wall, and in consequence these radiators were extremely inaccessible in the event of repairs. These radiators in turn were connected to open air ducts or flues in back which allowed a free passage of air with its attending dust and bacteria to pass into the area to be heated and ventilated after having

passed through the radiator or heater coils located at the head of these various ducts. This type of system has proved itself very unsatisfactory for various reasons. Outside air enters these ducts or flues unrestricted as to velocity and is acted upon by changeable outside air direction.

Under these circumstances such ducts or flues soon become heavily coated with dust and dirt deposited from outside and, when favorable wind direction acts upon certain ducts of such a system, this dirt deposit is carried on through the radiator and heating coils and deposited throughout the area to be heated. It has, therefore, become necessary to develop a system whereby a continuous, reliable, and positive change of air of say from four to six times an hour could be attained in the entire area to be heated supplying clean, heated air and controlled from a central point.

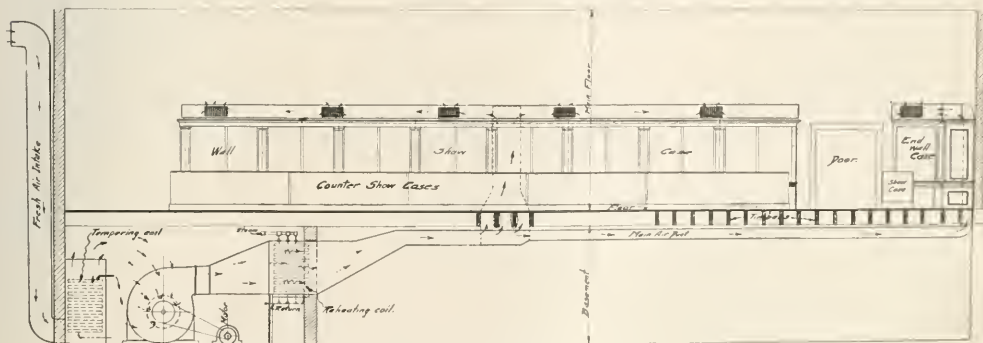
Following is a brief description of a centralized heating and ventilating plant as installed in the R. H. White Company department store in Boston:

The modern inventions of the last century have exploited and utilized practically every force of nature for industrial purposes. One powerful agent, however, a force having tremendous industrial possibilities, has

been almost entirely neglected by managers, executives and engineers. This is moving air. Perhaps it has been due to our close, daily and intimate relationship with this ever present force and for this reason we have failed to realize its potentialities.

Practically every progressive, industrial institution can use moving air to a distinct profit and in the case of proper heating and ventilating increasing the efficiency and health of their workers.

In making this installation it was imperative to eliminate the use of any floor areas for installing heating coils or floor registers, and in consequence these ventilating and heating ducts were carried under the basement ceiling to points directly under the main floor wall show cases, and risers were erected in back of these wall cases which were in turn connected to horizontal ducts on the main floor and which were placed on top of and parallel with same. These in turn were pierced by grills or registers allowing a free passage of washed and heated air to pass into the area to be ventilated. These registers or grills were faced with wood to correspond with the same exterior finish as wall show cases below, and placed approximately eight feet from the floor. This prevents the warmed



Section diagram showing plan of centralized heating and ventilating system for use in stores and public buildings.

air from directly striking those passing underneath. The extreme simplicity of operation of an installation of this nature can readily be appreciated by the fact that all heating coils used in tempering the incoming air as well as the reheating coils used after this air has passed through the air washing fan are practically a self-contained unit which can be located in a comparatively small basement room or compartment where the same can be controlled from one point.

The air washing feature of the above described unit recirculates the water used for washing purposes which in turn is automatically controlled by a float, and the only additional water used is that lost through evaporation which is extremely small and is automatically supplied from city water connection.

It is also to be understood that in a self-contained air washing fan of this description the spray nozzles do not sufficiently break up this water to form a mist or act as a humidifier as is the case in some air washing systems. The spray falls upon a revolving bronze screen and the incoming air is forced to pass through this screen which in turn is being continuously covered by a heavy spray of water. In consequence, the air is cleared of dust and impurities and somewhat lowered in temperature before passing on into the distributing ducts. It will be readily seen that this system is thoroughly practical for use during the summer months as a means of supplying fresh air, and with its attending air washing and cooling feature a reduction of approximately from 4 degrees to 5 degrees F. can be attained without difficulty at the outlet grills. At the same time drafts and unpleasant air currents created by individual open windows or the use of fans, now so frequently employed, are entirely avoided.

Another extremely important feature in installations of this nature is the fact that a constant slight static pressure is produced throughout the area or room so ventilated which is sufficient to expel dead air through open windows and doors, at the same time greatly eliminating the entrance of cold air or drafts by the continuous opening of outer doors during the heating season as well as during summer conditions where changeable outside air currents are apt to sweep in large quantities of dust. This is especially true of department stores. The above fact has been proven quite

conclusively wherever a system of this nature has been installed. It eliminates to a great extent the dust deposit on merchandise and counters and in consequence has materially worked toward a better health condition especially among store employees, which in turn has a direct bearing upon a more efficient merchandising policy.

Considerable pioneer engineering has been necessary among executives and managers in order that a system of such vital importance should be more universally understood, and it is the author's belief that the older and cruder methods of ventilating and heating will soon be superseded by similar systems described herein, as installations of this kind have now been made with very satisfactory results in large department stores and public buildings in various sections of the country.

Social Legislation in North Carolina

Social legislation fared well at the hands of the General Assembly of 1923. No retrogressive step was taken in regard to North Carolina's social program.

Most important among the measures passed are the Mothers' Aid bill, the one to raise the age of consent from fourteen to sixteen years, and its companion making the legal age of marriage sixteen instead of fourteen, the establishment of an industrial training school for delinquent boys in eastern North Carolina and the bill to allow two or more counties to unite to build a county home. It was also favorable for the progress of public welfare work in North Carolina that the proposed amendment to the juvenile court law, which would reduce the age limit of jurisdiction of that court from sixteen to fourteen, failed to pass.

Prison reform bills sponsored by the N. C. Conference for Social Service traveled a rougher road than the rest of the social measures. Three out of seven bills on the program of the Conference introduced into the General Assembly passed. These were: to put the state prison on an appropriation basis; to abolish the department for criminal insane at the state prison; and to establish a colony for tuberculous prisoners. These last two were offered by Superintendent Pou and all three had his support. The bills which failed to pass were: to abolish flogging as a punishment; to reorganize the Board of Directors of the state prison; to

change the personnel of the Advisory Board of Parole; and to send all prisoners sentenced for more than three months to the state prison.

The appropriation to the State Board of Charities and Public Welfare was increased by the General Assembly from twenty thousand to thirty thousand dollars a year. The State Child Welfare Commission which has the enforcement of the child labor law in North Carolina received an annual increase of ten thousand dollars.

The Pencil Sucker

"Look at the boy."

"What is the boy doing?"

"He is trying to think."

"How do you know he is trying to think?"

"I know he is trying to think because he is sucking his pencil."

"Does he think he can get ideas out of it in that way?"

"No. He probably doesn't think about it at all. It is just a nasty and dangerous habit."

"Why is it a dangerous habit?"

"Because somebody with a disease may also have been trying to suck ideas out of the same pencil."

"I never thought of that."

"Yes. It's not thinking which causes many accidents, much suffering and many deaths. Whenever you see a pencil with tooth-marks on the end you will know that it has been used by somebody who doesn't think."

Financing Child Health Demonstration

Municipalities of less than thirty thousand population, and rural districts south of the Mason-Dixon line and east of the Mississippi are eligible for the second of three child health demonstrations being financed by the Commonwealth Fund. The communities interested should communicate at once with the Child Health Demonstration Committee, 370 Seventh Avenue, New York City.

Fourteen colored graduate nurses are now serving in the public health field in Alabama.

The International Association of Street Sanitation Officials will hold its next annual conference in Chicago, September 27 and 28, with headquarters at Hotel La Salle.

The Endicott-Johnson Shoe Corporation, Binghamton, N. Y., spent \$615,000 for the 1923 vacations of its fourteen thousand employees.

Three New Services of Life Insurance to Public Health*

By H. W. HILL, M.D., D.P.H., L.M.C.C., DEAN, FACULTY OF PUBLIC HEALTH, UNIVERSITY OF WESTERN ONTARIO, LONDON, CANADA.

LIFE insurance is the public health of economics. Insurance is, in economic welfare, just what public health is in physical welfare; for public health is, in the every day physical activities of men, the great foresighted, forehanded preventive against physical disaster; and life insurance is, in the everyday financial activities of men, the same foresighted, forehanded preventive against financial disaster. Life, accident and sickness insurance are even more evidently connected with public health than is insurance in general for they deal directly with the same problems of disease and death as public health. Public health is designed to prevent disease and delay death by physical measures. Life insurance, when public health fails, steps in, to prevent by financial measures, the losses and sorrow thus occasioned. The longer that death is delayed and the more that disease is prevented by public health, the less is the outgo of insurance moneys and the greater its income. Public health success thus permits cheaper life insurance; which in turn mean that more persons may become financially protected; and thus both insurance and the public are benefited, physically and financially, directly and indirectly. Since public health so greatly aids life insurance, life insurance should as greatly aid public health; for from no source can more help for either be obtained than from the other.

A Great Triumvirate

Medicine, public health and life insurance constitute a great triumvirate. Three well known professions are peculiarly interested in the prevention of disease, in the promotion of health, in the attainment of "a

good old age." These three are medicine, life insurance, and public health. How and why? Obviously this is true of the physician, for dead patients certainly are of no value to him. Restoration to health is his business, and prevention of disease rather than the cure, of the sick is constant-

Life insurance touches death and disease, not merely to meet the physical needs of the moment, as the physician does at a price, however just that price is; but to meet the financial needs of the moment associated with death and disease. It is true that this is also done at a price—but at a price that is paid long beforehand, during health and prosperity; not as the physician's fees are, at the moment when both health and prosperity are at low ebb. The physician may bring physical aid, may prevent physical death, and thus make future health and prosperity possible; but insurance brings financial aid at once, relieving the immediate situation; and provides, through the financial aid, that very physical aid of the physician which may re-establish the physical future as well as the financial. All the real interests of insurance, like the real interests of the physician, lie, but even more strongly if possible, in securing both life and health than in relief, either physical or financial; for the long life and prosperity of their clients insure to both of them the best chances of the best financial returns. Moreover, the longer the life of the policyholder and the greater his

health, the less is the expense to insurance, and the less to the policyholder also. It is cheaper for him (and cheaper for the community) that he be in health, at least alive, than be sick or dead. Health and long life mean greater savings to policyholders and make them better able to pay for all services rendered, including those of public health; and hence public health works out as the best policy financially for all three professions, while for the public itself, this combination yields the greatest of all returns, life. Now it is not by any means true of all commercial en-

ly looming larger and larger in the medical mind, because of its physical advantages to the race, and also because of its financial advantages to the physician himself.
Public health is well known as a development of medicine largely pushed by medical men, quite unselfishly, before these developments were foreseen. It is eminently fair and proper that the profession which first developed this science should reap some of the quite unforeseen but now obvious rewards.

Life insurance is the one sound, economic basis for physical welfare.

*Presented before the Life Underwriters of Ontario, London, Canada, February 13, 1923. 13, 1923.

terprises that everyone in it is benefited in all directions; and the consumer most of all!

The Public are ready to join the triumvirate. Thus life insurance, medicine, public health and the public form a natural union for prolonging life and health in the race. The interests of all four are identical; their operations should be conducted together. All four see the needs intimately and personally, although from different angles. The cooperation of each helps the other, directly and indirectly. The public, long hammered at by pamphlets, lectures, newspaper articles, immensely impressed by the triumphs of medicine and public health in the Great War, are ripe for big public health advances. These four then should co-operate more closely than at present. So far, life insurance has first recognized, not only the humanitarian aspect, but also the *economic* advantages of public health; and of the three professions it has most definitely set out to promote public health clearly and frankly as a big business proposition. This is too well known to require expansion here. It is time that public health and the physician should see how much life insurance can help them to attain their professional aims, and to do this on a sound economic foundation. It is time also to take the public into the combination, as one of the "firm."

There are three definite ways in which life insurance companies can act, and should act, for their own benefit, doubtless, but even more definitely to the advantage of medicine, of public health, and of the public. These fields are (a) education in public health, (b) medical supervision of individual policyholders, and (c) standardization of community health activities. Of these, *the latter is wholly new*, while the other two should be done in the future on a scale and in a manner so much more advanced over the present procedures as to make them also new in effect.

New Educational Methods

These three definite steps here proposed for insurance to follow are intimately connected and are all at bottom educational. Education of policy-holders in protecting themselves from disease, in delaying death, is obviously of value to both insurance and policy-holder. But this education, done now by pamphlets, etc.—good, so far as those pamphlets can go—is far better, more directly, more efficiently done by adding *demonstra-*

tion; that is, personal interviews, direct visits and discussion of personal physical troubles; suggesting prevention, and supervising, even conducting, preventive measures; a regular public health campaign brought personally to the policy-holder, by *life insurance itself*.

This program has, it is true, been carried out after a fashion, in the past, more or less, in some places; but I propose that it be done here in Canada, better, more widely, more intensively; and particularly by *demonstrating and teaching health*—in brief, that the new life insurance public health nurse, the new life insurance public health physician, be not reserved to the sick as have been their predecessors heretofore, but should henceforth deal with the well, before they become sick—that the insurance public health nurse, for instance, shall no longer wait for disease to develop before she administers relief, thus reaching merely those policy-holders who are affected by disease; but shall visit regularly *all* policy-holders, *especially the well*, seeking to develop their health. True, the insurance public health nurse cannot cover this great field alone. As an investigator, adviser, and discoverer of early disease tendencies which may later become serious, she is invaluable, just as the cavalry scout is in war. But the insurance public health physician is quite as much needed. It should be his business, like heavy artillery, to detect and destroy the enemy hidden in force, to search out and deal with the more obscure and formidable incipient diseases before the policy-holder himself knows what threatens him—above all, to provide for the treatment, preventive and curative, possible at these early stages, as often it would not be possible later. Such work has been done heretofore on a voluntary, irregular basis, without uniformity. I propose that it be made a definite item in every policy-holders' life.

I propose that every Canadian life policy should contain a requirement that such examinations be made; that all Canadian life insurance companies should themselves provide the examinations, and that all policy-holders be given a financial benefit corresponding to part of the insurance economies thus effected.

Here is still education, not merely in pamphlets, although they are valuable; not only in personal advice, although that is still more useful; but in actual service. Here is public health of the highest type—conserving also that financial prosperity on

which rests the success of public health and yet combining to lessen its costs, and so widen its use by the public.

An Entirely New Step

So far, so good—and already generally conceded. But a wholly new step is needed. Back of the *individual* life, directly dealt with by life insurance, stand the many *community* causes of death and disease. In general these causes of death and disease are really purely community matters; for the *illnesses and deaths of individuals are in most cases dependent on circumstances beyond their immediate personal knowledge, their immediate personal control*. This is peculiarly true of *infection*, and therefore to *infections* are due the vast majority of both deaths and diseases. Only community action, backed by police powers, can control these; but unfortunately, little is at present being done, compared with what might be done, through community action, for their control.

Communities as they are now may or may not adequately protect their citizens against those infections, the great causes of death and disease, just exactly as communities may or may not provide adequate fire protection. Canadian life insurance companies are as vitally interested in prolonging life, in preventing disease, as fire insurance companies are in preventing fires, and should no longer neglect this great field, quite untouched by them as yet.

Actuarial Research

Life insurance should estimate the life and death risks in a given community, investigate the machinery of that community for promoting the one and preventing the other, and demand public health protection in accord with findings thus established—in short, do for public health the inestimable services that fire insurance has done for the prevention of fires, by bringing financial pressure to bear on the development of community public health efforts. No such service is now done for public health by any organization at present, official or otherwise. Yet fire insurance could not operate without this precaution, which life insurance wholly omits! Here again we have education, practical, direct, useful to life insurance itself and to its policy-holders. Here we have a field in which the life insurance company, through its own public health nurses and physicians, not alone may demand but also itself may supply, the protection required by its own—(Continued on Page 755)

The Welfare of Children In An Industrial Community*

Dwight Manufacturing Company, Alabama City, Ala., Accept Responsibility for Preserving Physical Fitness Among the Mill Children

By MARY V. HAMILTON, R.N., ALABAMA CITY, ALA.

CHILDREN cannot be kept physically fit in any community unless they are first made that way, so the Dwight Manufacturing Company begins at the very beginning by trying to give every child its birthright;—that of being well born. We try to get in touch with every pregnant woman in our community. She is instructed as to the hygiene of pregnancy: urinalysis is made about twice each month and medical treatment is given by the physician if indicated. Our mothers are intelligent women, taken as a whole, and wish to do only those things that will promote the well being of the unborn child. We talk to them in groups at social gatherings and try to make them understand that it is not the women in politics, the professional women, the artist, the business woman, nor yet the social leader that is the woman to be honored today, and that future generations will rise up and call blessed—but these women who are giving their all to bring up children that are, and will be 100 per cent morally, spiritually, and physically fit. Mothers doing this are the ones who in the years to come will make the history of the world. For it is still true that, "the hand that rocks the cradle is the hand that rules the world."

Eight years ago the Dwight Manufacturing Company installed as an experiment, the trained nurse who is also a trained social worker. We had read about the little children of the

cotton mill being driven like slaves with none of the pleasures of childhood, and of the rich mill owners who made money at the sacrifice of little lives, and it was with the hope of being able to put some joy into the lives of these little ones that we decided to leave more pleasant and profitable work in the city, and cast our lot in a little cotton mill town. We could hear in imagination the voices of these little children saying, "Come over, and help us." What was our surprise and pleasure when on meeting the agent, superintendent, and foreman of the mill, whom we had pictured as cold, heartless drivers of human beings to find them kind, earnest Christian men who were interested in the welfare of every man, woman, and child on their payroll. We had heard or read so many times

agitation of the mill child and his zest for play was just as keenly developed as that of the average boy or girl.

Shortly after we came to Alabama, the child labor law was changed so that no child under fourteen years of age was allowed to work. To the women of Alabama, we believe, is due to the honor of putting that bill through.

Like everything good we try to do, there is always something still to be done. One of the greatest problems we have is the children of widows who, on being deprived of the income from the child's labor, must themselves go to work, leaving the responsibility of keeping the home, such as cooking, washing, ironing, and tending babies to little girls whose backs soon bend underneath the too-heavy load. If

the state of Alabama could have gone a little farther when she took her children out of the work-shops and mills and could have provided some way of feeding and clothing the widows' children, many of our "little mothers"



Athletic sports are open to all workers. Competitive games contribute largely to the community spirit.

that these children did not even know how to play. What was our surprise on going through the mill to see some of them playing on their jobs. And as we walked through the village and saw the playhouses made out of boxes, and yards laid off with stones, and broken pieces of china making dollies, tea-things, very much as we had done as a child; or to see the boys playing ball, playing circus, or it might be marbles or leap frog, we decided that the im-

would not become old before their time; and our lads would not be running wild without parental restraint, while the mother works in the mill.

Eight years ago the death rate of infants from birth to two years was alarmingly great,—in 1916 it was over 18 per cent. We have splendid physicians who give their best to this work. We found that what defeated the physician at every turn was ignorance and

*Read before the annual conference of Welfare Workers of Alabama, Birmingham, March 19, 1923.

superstition. Way back in the dark ages some one had told their ancestors that night air was "pizen," so as many as six people often slept in one room with even the cracks under the doors

and windows covered to prevent any of the "pizen" night air from coming in. The old "grannies" of the town followed close on the doctors' track, and could in five minutes with her "yarbs and teas" undo what it had taken the doctor two weeks of patient, earnest work to accomplish. One of these women in particular was a nuisance. One of our physicians had a case of a premature baby. We were so interested in seeing the little one developed into a strong, healthy infant. We were devoting as much time to its care and feeding as could be spared from other work. The doctor was very much pleased and thought that with good team work, the family, the nurse and the doctor pulling together, we could save the little one. About the time when we thought we were out of the woods the old "witch doctor" who had been out of town on a visit returned and on learning of the baby, went to offer her wisdom. She immediately decided the baby had "bone hives" and needed to be scarified. She proceeded to carve a cross on its little back, get a few drops of blood in a spoon—she went to the wash bench on the back porch and filled the spoon from a basin of water some one had left standing after bathing their hands for dinner—and poured blood and dirty water down the baby's throat. Consequently we were called that night, and found the baby with a high temperature, and having convulsions. Well, we just sent a message to the dear old lady that if she ever interfered again with any one we had in charge, we would have her arrested and tried for murder. She was not friendly for a time towards the nurse

and her new fangled notions; but now after eight years to think it over, she is the first one in the village when some one is sick to say, "Send for the Nurse."

In 1916 our death rate, as we stated



A typical four room cottage supplied which makes a real home possible at the nominal sum of four dollars rental per month.

before, was over 18 per cent. With the splendid cooperation of the physicians, the mill officials, and the mothers—who though a little slow at first to give up their traditions—have made it possible for us to reduce our death rate year by year until the year 1922 our death rate in the mill village was less than 5 per cent.

Keeping children physically fit, covers every environment, in fact everything that pertains to child life, homes, schools, church organizations and places of amusements. We try even for material. It is surprising

children for physical defects, that 80 per cent were defective. We were furnished a list of the names of all children and what constituted the defect of each child. Going carefully

over the list we found diseased tonsils, adenoids and dental caries made up furnishing the supplies about 75 per cent of our children who were physical defective. Our agent and superintendent put their heads together and offered the county health officer, who was planning an ear, nose and throat clinic for the County of Etowah, the use of our operating room and hospital as a center for the county with the understanding that our "mill" children would have the work done free, the company furnishing the supplies necessary for the operations.

Modern Dental Office

The Dwight Company are never satisfied with half-way measures, so they fitted up a dental office and secured the service of a first class dentist who gives two afternoons each week, the company paying him, and only charging for the material used in fillings, plates, or bridge work—and that being paid a little at a time each pay-day. In cases of children of widows, there is no charge made how many of our people take advantage of the opportunities being offered them to make their children 100 per cent to the good. The dental clinic, if anything, is better attended than the throat clinic. These people have always been hot on the trail of health, yet they sought it in ignorance via the patent medicine route and the conjuring methods of the quack. We believe that now they are awake to what is true and what is false in the



Bath houses of the Dwight Manufacturing Company.

to keep in touch with them all. After several years of hard work along health lines, we were shocked when our public health officer, Dr. Murphree, informed us after examining our thirteen hundred public school

battle of life, and will see to it, that the future generations are born fit. One of the best things The Dwight Company did toward keeping our little ones fit was to fence in about forty acres of—(Continued on Page 750)

Internal Secretion and Physical Efficiency*

Muscular Efficiency Is Directly Related to the Integrity of Certain Endocrine Glands

BY FRANK A. HARTMAN, M.D., PROFESSOR OF PHYSIOLOGY, UNIVERSITY OF BUFFALO, BUFFALO, N. Y.

TOO much is not to be expected of the internal secretions. Many extravagant claims have been made from time to time, and because of the popularity of the subject, much material of doubtful value is being published.

Internal secretions are products of ductless glands. A ductless gland pours its secretion directly into the blood-stream coursing through its tissue. In this way the secretion can be carried to all parts of the body, acting upon various tissues. Some of the ductless glands exercise such a profound influence that their removal produces death in a short time. All of the ductless glands play an important part in the control of the organism.

Indirectly perhaps all of them affect muscular efficiency; but directly, possibly three exercise some function in this respect viz., the pituitary, thyroid, and adrenals.

In some instances the normal action of these glands can only be determined indirectly by studying the results of removal of the gland or by studying the conditions resulting from a gland rendered deficient by disease. This is true of the pituitary.

Unfortunately we know little that is specific concerning the pituitary in relation to physical efficiency. When the activity of this gland is below normal, as in thyroid and adrenal deficiency, there is a loss in physical power. In mild cases physical power may be merely subnormal. If more severe, movements become sluggish and slight exertion causes fatigue. In extreme cases this weakness may become so pronounced that the subject requires support when standing. On the other hand unusual physical strength is sometimes attributed to overcapacity of the pituitary.

We should like to know more concerning the milder forms of underactivity and overactivity of the pituitary, but in this we are hindered by

the difficulty of early identification of the disease.

Judging from the more pronounced cases, a healthy pituitary function seems necessary for normal muscular activity, but we are not justified in positive statement further than this.

We know more concerning the thyroid because of the easier detection of its disease.

In an individual with sluggish nervous and muscular response it is quite possible that the thyroid is at fault and the physician can remedy the condition by the giving of thyroxin or iodine. It has been shown that a lack of iodine in the food is frequently responsible for a reduced thyroid activity. Thus such cases are more plentiful inland away from the sea, the main source of supply of iodine. Thyroid insufficiency in school children has been reduced strikingly in these regions by the feeding of iodine for several days during the spring and fall. Teachers in physical education may be of considerable use in detecting early thyroid deficiency, for muscular weakness is one of the first symptoms. Fatigue develops easily, and frequently the subject becomes unfit for work. It is necessary to point out the extreme of this condition only insofar as it demonstrates the efficacy of treatment. In cretins, individuals who have never possessed a normal thyroid, the whole growth is stunted. Muscular and mental powers are feeble. Feeding of thyroid causes the muscles to harden and agility of movement is developed. In time the individual may become perfectly normal, provided treatment is started early and is maintained.

Emergency Service of Adrenals

Finally we come to the adrenal glands which appear to be most important of all in muscular efficiency.

Removal of both adrenals in animals leads in a relatively short time (except in an occasional rabbit or rat) to a characteristic muscular weakness. An individual affected in this way tires readily on slight exertion

and evinces a growing inclination to avoid physical effort.

Further evidence that the adrenals play some role in muscular activity is found upon microscopic examination of the adrenals after intense prolonged muscular exercise. They present a picture of great overactivity approaching exhaustion. The fat-like bodies (lipoids) which are normally very abundant, are absent or scant in amount.

In addition there seems to be a close relationship between the relative size of the adrenals and muscular development.

Elliott and Tucker found that higher in the scale of animal life the adrenals became relatively larger. Likewise, the musculature is better developed the higher one goes in the scale of life. Moreover, it seems that the adrenals are better developed in animals which are very active. Watson has found that the weight of the adrenals in wild rats is between two and three times greater than in tame rats. The extremely active muscles of the wild animal is compared to those of the tame animal may account for the difference.

What does the adrenal produce which would be of use in muscular activity? Epinephrin, sometimes known by the proprietary name of ardenalin, is the only substance known to be produced by this gland.

Part of the epinephrin is stored in the central portion of the gland to be released in time of emergency. It has been shown that strong stimuli of various sorts will increase the output of epinephrin in normal animals. Painful stimulation, immersion in a cold bath, the excitement produced by shutting off the air to the lungs for forty seconds or less, all cause a very marked increase in the epinephrin poured into the blood stream. Muscular activity will produce a similar increase as we shall show.

If one removes a small ganglion (superior cervical ganglion) which controls some of the nerve fibers to the iris, in a few days, the iris be-

*Address before the American Physical Education Association, Springfield, Mass., April 12, 1923.

comes very sensitive to epinephrin. Under these conditions, if the epinephrin in the blood is increased beyond a certain amount, the sensitized pupil dilates. If the epinephrin is further augmented the pupil enlarges more. Thus the sensitized pupil may be used as a test for increased epinephrin in the blood.

The effect of exercise on the epinephrin output was studied in cats with a sensitized pupil. It was found that from one and one-half to three minutes of vigorous work in a treadmill caused sufficient increase in the epinephrin to dilate the sensitive pupil. In that time the cat had travelled from forty to 180 meters. If the animal worked slowly, it took much longer for the epinephrin increase to appear. This applies in animals starting from a long period of rest. If the animal had been exercised only a short time before and had rested only long enough for the sensitized pupil to return to normal, it seemed to require a shorter period of exercise to cause a detectable increase in epinephrin as indicated by dilatation of the pupil.

As exercise in the treadmill was continued, the epinephrin output became greater and greater until the pupil might become almost maximally dilated. The magnitude of this increased output seemed to depend upon the intensity and duration of the exercise particularly the former as the following illustration shows:

Two cats led around the room at a moderate pace for twenty minutes (544 m.) showed a small increase in epinephrin output; one of these however showed no increase until five hundred meters had been passed. The same cats exercised more vigorously in the treadmill showed an increase in the epinephrin output in three and six minutes respectively.

Following the cessation of vigorous exercise the increased outpouring of epinephrin persists for periods of time ranging from a few minutes to a few hours. It is known that epinephrin increases the rate of metabolism in the body. Therefore the increased discharge of epinephrin into the blood stream following vigorous exercise may aid the body by stimulation of otherwise sluggish tissues. Everyone has experienced the benefit, especially if his occupation is sedentary, of a short period of vigorous exercise. The increased secretion of epinephrin is probably a factor in this improvement. Mild exercise does not produce such marked effects. This may be due to the smaller amount of epinephrin released.

That epinephrin plays an essential part in muscular activity is indicated by certain experiments of ours.

In rare instances we found cats which did not show an increase in epinephrin during their first test in the treadmill. At this time the cats were not able to travel so far as they were when epinephrin was secreted. One cat showed no increase in epinephrin and was able to travel only 741 m., because of the appearance of convulsions. But on the afternoon of the same day, the cat when tried in the treadmill gave a decided increase in the epinephrin output and travelled three times as far. In fact it could have gone farther.

The epinephrin output increased more and more as the work progressed until the stage of marked increase was reached. Spurts of work were attended by sudden increases in the epinephrin output.

We have also been able to show that intramuscular injections of epinephrin enable an animal to work better. This is particularly true if the nerves to the adrenals have been cut so that increased secretion from the glands cannot take place.

Gruber and others pointed out a few years ago that large amounts of epinephrin when injected into a fatigued muscle would cause the disappearance of the fatigue for a time, and a muscle so treated, which had almost ceased to contract, would recover and go on contracting for some time. It was not known, at that time, that epinephrin is increased normally during exercise.

The beneficial effect of epinephrin is produced in two ways: (1) It causes a shifting of the blood from the skin and organs of the abdomen to the muscles by vascular constriction in the former and vascular dilatation in the latter. Thus the oxygen and food supply becomes more plentiful while the waste products can be more readily removed. (2) It benefits the muscle directly in some way not understood (Martin).

Earlier in our discussion we mentioned that an increase in epinephrin could be obtained more easily if the animal had been working a short time before. This suggests that an epinephrin increase may be an important factor in the so-called "warming up" process employed just preceding athletic contests. "Warming up" is particularly useful preceding races and tests of supreme effort. It not only speeds up the circulation but increases the epinephrin output. The latter further increases the circulation to the muscles and delays the

onset of fatigue. The muscles then are ready to work most efficiently and the athlete does his best.

It is also of interest to physical directors that the development of "second wind" is frequently accompanied by a decided increase in epinephrin. Thus an animal may be traveling along at a certain pace. When suddenly he seems to gain renewed energy, and shows a burst of speed which he is able to sustain for some time. Simultaneously there is a great increase in the amount of epinephrin which is being secreted. Knowing the effect of epinephrin on physical efficiency, it is very reasonable to suppose that the increased output of epinephrin aids materially in the production of "second wind."

It has already been mentioned that anything which arouses the major emotions such as pain or asphyxia decidedly increases the epinephrin output. It seems that it is the intense excitement which accomplishes this, because take e. g., partial asphyxia. We have made a practice in our tests of cutting off the air to the lungs for forty seconds by holding a rubber glove tightly against the nose and mouth. If the animal does not become excited during this period, as is occasionally the case, there is no increase in epinephrin.

Again during another test of equal duration, the same animal becomes excited, then the epinephrin output is increased. Therefore it is the excitement and not the lack of oxygen which really stimulates the adrenals.

In exciting games it is quite probable that more epinephrin is secreted than would be in a listless contest. This increase would undoubtedly be a factor in producing greater physical efficiency.

In conclusion we may say that the secretions of the pituitary, thyroid and adrenal are important factors in promoting physical efficiency. But of the three, whether in quiet life or in extreme tests of physical endurance, the adrenal gland appears to be especially fitted to control muscular efficiency.

Dr. Leland E. Cofer Directs Industrial Hygiene

Announcement is made of the appointment of Dr. Leland E. Cofer, New York City, as director of the Division of Industrial Hygiene of the State Department of Labor. Dr. Cofer has been an officer in the United States Public Health Service for more than thirty years.

A Hundred Cardiacs at Work

Adjustment Must Be on the Basis of Temperamental Adaptability As Well As in Keeping With the Energy Quotient of the Patient

BY GERTRUDE R. STEIN, NEW YORK STATE BUREAU OF REHABILITATION, NEW YORK CITY.

TO BE a cardiac has, in the past, meant a life of dependence upon others, a situation brought about by the ignorance of relatives, their sympathetic attitude and willingness to wait on the patient in their belief that he must never again exert himself in any way. The thought of possible employment for the cardiac is only a comparatively new one. Most specialists now agree, however, that the majority of cardiacs are better off at work than when idle, but it is still a question as to how much work they can do and whether they can work continuously. This is no simple problem to solve. There is no trade suitable to every cardiac, nor is there a single scheme of rehabilitation appropriate to every case. The placement of cardiacs in industry is one of the most difficult problems in placement work.

All placement work of cardiacs, to be constructive, must be individual. Wholesale placement has little value. The great difficulty in placement work of the handicapped is that we have practically no theory on which to base our premises. Our work becomes valuable only after years of experience. Perhaps it may be assumed, therefore, that after placing a few more than one hundred cases and following these for less than a year, it is presumption on anyone's part to attempt to discuss the problem. However, what is to be said in this article is based not on theory, but on the actual experience gathered by the New York State Bureau of Rehabilitation and its agents in handling these cases.

It is doubtful whether the regular employment bureaus can successfully place cardiacs. They are too busy with the stress of their work to give the individual attention necessary. Temperamentally, cardiacs differ so greatly from the average client at an employment bureau that unless some one is deeply interested, they are apt to wander around from one job

to another. Experience seems to prove that, even after placement by persons interested in studying the individual and with some knowledge of job opportunities, only about 50 per cent will be steadily employed. Economically, the cost of maintaining these people in idleness when they have potential productive power justifies every expense and effort to find suitable employment.

Cooperative Effort Called For

What is needed is a placement and vocational guidance bureau which will work in close cooperation with the heart specialists of each community. As time goes on, such a

but a cardiac, often more disabled than either, is frequently required to do work far in excess of his strength. Fortunately, physicians and heart specialists now interpret the degree of heart trouble in terms of possible industrial effort and this is of great assistance to the layman in determining what kind of work the person should do. Placement should never be made without knowing in what classification the doctor has placed the patient. The classification according to work capacity or heart function is, from the layman's point of view, more important than the exact diagnosis. These classifications are now commonly used in New York

City, a copy of which can be secured from the Association for the Prevention and Relief of Heart Disease, 370 Seventh Avenue. In several other cities where special heart clinics are in operation, the same or similar classifications are used. The classifications which will be most frequently used in this paper are:

I.—Organic (able to carry on habitual physical activity).

II.—Organic, able to carry on; (A) Slightly diminished physical activity. (B) Greatly diminished physical activity.

III.—Organic (unequal to any physical activity).

Certain Limitations

In working with cardiacs each case must be considered as an individual one. There are, however, certain physical limitations which hamper all cardiacs. Lifting is the main thing to guard against. There are few cardiacs who can stand the work of a longshoreman, a sailor, a driver, a shipping clerk, or a porter. The more unskilled the work is, the more apt it is to be too arduous; the more skilled trades offering the best opportunity of avoiding heavy strains.

Most cardiacs cannot frequently or continuously climb stairs or run er-



Class in dressmaking at the Trade School for Cardiac Children, New York City.

bureau will collect valuable information about successful and unsuccessful attacks on the problem. The workers in such a bureau will be able to give some definite information on the kinds of work certain types of cardiacs can do. It is only by using the most infinite care and the most scientific methods that any results in working with the cardiac can be expected.

Placement work of the cardiac is more difficult than the placement of other disabled people because the disability is not evident. If a man has a leg injury he is not asked to stand all day. If a man has an arm injury he is not called upon to do heavy lifting;

rands without bringing on attacks. Work as a salesman is usually quite unsuitable. The first jobs of most boys necessitate the doing of a great many errands. This is chiefly due to their lack of any special knowledge of a particular form of work and they are consequently required to do general work which would be injurious to a cardiac. For this reason it seems important to give a young cardiac trade or commercial training if he is mentally capable of absorbing it. Many vocational counsellors think it is necessary for the cardiac to take only a seated job. It is true that he is less exposed to the dangers of excessive lifting or climbing in a seated job than in a standing one, but if all employment of cardiacs is limited to seated jobs, the opportunities are very few. Most of the better seated jobs are held by women, and there are only a few processes in which a man can make a living wage which permit him to remain seated most or all of the time. We must always remember we are dealing with human beings, not "cases," and definitely proportionate to the variety of opportunities offered will be the degree of successful rehabilitations. Wherever a man is strong enough

to do a man size job, let us give it to him. There is no advantage, however, in being too optimistic. If a sedentary job is the only job the doctor believes the cardiac can do and not break down under the strain, an effort must be made to find the right sort of seated job for him.

Some doctors recommend outside work for cardiacs. They forget the fact that most outside work is much heavier than inside work. They also forget that the benefits of the air are often counterbalanced by the changes of temperature and the danger of wetting to those who have rheumatic tendencies and are susceptible to colds

and bronchitis. The average cardiac is much steadier and better physically at work in a well ventilated factory than exposed outdoors to a New York winter.

A great many inquiries have come to the New York State Rehabilitation Bureau as to suitable occupations for cardiacs. It is difficult to state that one trade is wholly suitable or unsuitable for a particular group of the handicapped, because one must be flexible if one hopes to place people in work congenial to their tastes. The lists of occupations given in Tables I and II are offered therefore only for what suggestive value they may have.

TABLE I.—OCCUPATIONS FOR CARDIACS.

For Men and Boys Industry—Skilled	Process	Remarks.
Jewelry	All processes Jewelry design.	This work has proved to be excellent as it is light and varied.
Watch and clock....	Repairing	The advantage of this work is that a skilled man can work at it part time in his home, if necessary.
Instrument making..	Assembly, etc.,	Much of this work is seated.
Electrical manufac- ture.	Assembly, soldering, etc.	The cardiac who wants to be a radio operator may have to be satisfied in assembling radio parts. Radio work itself is very unsuitable.
Celluloid novelties...	Engraving, jig saw... and assembly.	This work often is done with firms making spectacles.
Diamond	Polishing	
Architecture	Draughting	
Mechanical engineer- ing.	Draughting	
Automobile	Vulcanizing	This work seldom suitable for a IIb case.
Barber	Barber	Not suitable for a cardiac who cannot stand for long periods or work quickly.
Pocket book	Pasting and operating	Not suitable for neurotic cardiacs because of excessive speed.
Garment and fur....	Operating, finishing, etc.	
Clerical	Bookkeeping, stenog- raphy, accountancy.	
Photography	Retouching	Dark room conditions would not be suitable to many cardiacs.
Printing	Proof reading and copy-holding.	Home work might be possible.
Lithography	Lettering, poster, ar- tist, stone artist, and photographer.	
Steel engraving....	Painting faces.	
Dolls	Grinding, rubber turn- ing, etc.	Most of this work is seated.
Fountain pen....	Glueing, assembly, etc.	
Piano actions....	Covering, machine work.	
Buttons		
Unskilled and Semi- skilled:		
Restaurant	Cashier and checker.	
Shipping	Checker.	
Buildings	Elevator operators.	
Apartment house ..	Switchboard	Provided board is not too heavy and there is not too much excitement.
Construction	Watchman	Provided stair climbing is limited
News-stand	News-stand	Provided there is not too much exposure to inclement weather.
Hotels, clubs, etc.,	Doormen	
Theater	Ticket taker.	

Temperament often limits the cardiac as much as his physical condition does. The placement worker must be very cautious of the things cripples state they cannot do, unless their statements are corroborated by a physician. For instance, many cardiacs claim they cannot work if there is the least dust in the air. Where there is an asthmatic complication, it is of course inadvisable to place a cardiac where there is anything which is apt to make him cough, but the majority of cardiacs will not be injured by the atmosphere of most well kept factories. Some cardiacs complain of their sen-

sitiveness to smell. This is usually mental. Such prejudices often have to be accepted, however, although they have no physical basis. Sensitiveness to foreign proteins causing asthma and hay fever may, however, be the cause of serious complications in a cardiac and still further limit the available occupations.

Experience seems to show that most cardiacs are inert and lacking in initiative. They seldom suggest what work they want to do themselves, but it must be suggested to them. It is unusual to come across a cardiac who wants to do work which exceeds his strength. Cardiacs are apt to worry about themselves and to

become neurasthenic. The quicker a cardiac can be readjusted to work the less apt he is to become depressed. Therefore, if the cardiac is to take training, it is usually preferable to give him a brief rather than a prolonged course of training. For the same reason, wherever possible, a cardiac should remain at his old trade and do that part which does not aggravate his physical condition. The less readjustment he has to make, the less likely he is to become despondent. Many cardiacs cannot remain at their old

trades, but wherever it is possible it should be encouraged.

It will be of interest to discuss under fictitious names some of the types of neurasthenic cardiacs who have come to the State Bureau of Rehabilitation. Callan, age 26, was sent by a doctor who stated the man should be able to work at least eight hours a day at a sedentary job. Whenever such a position was secured for him, however, he became so excited that he overtaxed his strength and had to give up his job. Obberman, a IIa cardiac, left each job offered him because he said "it got on his nerves." He was so lacking in cooperation and

so irregular at work that he was unplaceable. Mrs. Jones, age 27, was an ironer in a laundry. The doctor stated such work was unsuitable and her condition would improve under the proper conditions. She went to a dressmaking school, but after she completed the course, she was never able to hold a sewing job more than three or four weeks because of her nervousness. She seemed unable to readjust herself and before long returned to the laundry, where she did work which far exceeded her physical strength.

Many of the juvenile cardiacs who came to the bureau were also neurotic. Some of the children who have gone to special cardiac classes have a tendency to become over-conscious of their disability. They give their illness as an excuse for being late or for malingering on their job. Anthony Brown was typical of this tendency. He attended a trade school where he took up jewelry. His work was good but he came and went as he pleased and refused to follow the general rules of the school. It was decided to try him out at work; he was so self-centered and temperamental, it was thought the discipline of actual work conditions would be good for him. Many positions were found but repeatedly he gave them up. Brown's cardiac condition is not a serious one, but his temperament is a definite handicap in his success at work.

Some of these stories give a rather gloomy picture of the potentialities of the cardiac as a steady, valuable employee. In spite of this, experience shows definitely that many cardiacs can prove very worth while workers and that most of these cardiacs who do work steadily are in better physical condition than when they are unemployed. By following up the reports of some of these cardiacs at work, one can see, in their classifications, changes which show a marked

improvement in their condition.

James Meehan, age 35, had been out of work two years when he applied at the Rehabilitation Bureau. He was a IIB cardiac and his own trade, that of an iron worker, was unsuitable and dangerous. He took two months training in a vulcanizing school. His physical condition was carefully watched and after one year of steady employment at this trade he has been reclassified as a IIA case. He can do heavier work than he was able to undertake at the time he started the training. He is now acting as assistant instructor at the school where he trained.

Frank Gregory, age 33, is another cardiac who has successfully been able

TABLE II.—OCCUPATIONS FOR CARDIACS.

For Women and Girls: Industry—Skilled	Process	Remarks
Millinery	Millinery processes...	Beginners must be cautioned against errands.
Lamp shades	Pasting or sewing...	
Dressmaking	Hand sewing and operating...	
Clothing manufacture	Finishing	Operating is usually too strenuous for IIA and IIB cases. The excessive speed of this industry makes it rather inadvisable. Small shops where there is hand sewing and embroidery prove good places often for cardiacs.
Underwear, blouses...	Hand sewing	
Clothing	Invisible mending...	
Laces and fine embroidery	Mending	
Dresses	Crochet beading...	Home work at this trade is sometimes suitable for IIB case.
Art work	Fashion design, etc.	
Clerical	Bookkeeping, stenography and typing...	
Celluloid	Painting, engraving...	
Institution	Sametress and information clerk...	
Wholesale house...	Sample mounting...	
Unskilled and Semi-Skilled:		
Buttons	Carding, sorting and packing...	
Candy	Packing, wrapping...	
Dolls	Packing, dressing...	
Hair net	Packing, examining...	
Hosiery	Packing, examining...	
Gloves	Packing, examining...	
Jewelry	Carding, boxing...	
Knit goods	Ribboning, examining...	
Lantern slides	Coloring	
Dress patterns	Folding, wrapping, etc.	
Pencils	Boxing, assembly...	
Piano action	Assembly, etc.	
Ribbons	Cutting, blocking, finishing...	
Drug supplies	Filling, labelling, finishing, etc.	
Domestic	Matron in clubs, etc.	

to change his trade. He was a baker by trade but the heat of the workshop seemed to aggravate his condition. After four months unemployment he came to the Rehabilitation Bureau quite disheartened. The course chosen was one in a barber school. The work has proved very suitable, and the doctor feels satisfied with his physical condition. Mr. Gregory is an easy talker and what is known in barbers' parlance as a "check getter." He is now employed as the manager of a barber shop.

Anna Black is another example of improved health and spirits after training. Anna is sixteen years old and her cardiac condition was not serious. She attended a public high school but had to stop her course be-

cause of the stair climbing. The girl had a very nervous temperament and this was aggravated by the constant friction in her home. Her father was very strict and allowed her few privileges. The girl brooded about the restrictions of her home. The rehabilitation counselor pointed out to the parents the harm they were doing her by not allowing her to lead a happier and more normal life. The father has since become less strict and the girl's entire outlook on life is altered. The girl has been taking a course in a commercial school and is progressing very well with this work.

Moore, a young man 20 years old, had been unemployed eighteen months because of his cardiac condition. The

only work he had done previously to his coming to the bureau was that of doorman. He was trained as a sewing machine operator on white uniforms. His condition has been carefully watched while in training and it has improved. He has been employed for some time at this work and it appears to be a successful choice of vocation.

Watch-repair work and jewelry have proven very successful courses for some of these trainees. Cardiacs seem more adapted for light

seated work of this kind than for any other. The Bureau has never tried training an adult for watch repairing but it would appear very suitable for a man to carry on in his own home if he were too disabled to work the whole day. Of the eight boys who have taken the jewelry course, most of them are now successful at the trade.

Some of the training courses given by the Bureau of Rehabilitation are listed in Table III.

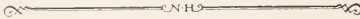
In training cardiacs for work, the Bureau of Rehabilitation has found that a variety of schools must be used. There are disadvantages in placing a great many adult cardiacs in one training center. Because of their neurasthenic tendencies, segregation—(Continued on Page 760)

The NATION'S HEALTH

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Editorials

WE HAVE discussed in earlier issues of THE NATION'S HEALTH certain of the administrative problems of the health officer, and his relations to the city authorities who furnish the sinews of war for his campaign. Scarcely less essential to success is the maintenance of a proper relation with the local medical profession.

Health Officer and Physician

The ancient barrier between public health and the private practitioner of medicine is being broken down with the progress of every passing year. On the one hand the physician in his individual practice is not only called upon to render more and more specific services to the state but in dealing with his patients he is every year devoting greater attention to the principles of health preservation as distinct from the alleviation of architecturally completed disease. As Sir Arthur Newsholme has said:¹

There will not be complete success until means are discovered for training and enlisting every medical practitioner as a medical officer of health in the circle of his private or public practice, and of securing his services not only in the early and prompt detection of disease, but also in the systematic supervision during health of the families under his care, and in advising them as to habits or methods of life which are inimical to health.

While on the one hand the private physician is thus becoming more and more truly a practitioner of prevention, the health department on the other hand is constantly facing a demand for the extension of its preventive service along lines which involve the organization of clinics of various sorts for the detection and preventive treatment of incipient disease. The trend toward expansion along such lines is clear and unmistakable; but if such developments are not wisely guided they are not only likely to provoke an active antagonism on the part of the medical profession but may work real harm to the progress of the general cause. It seems clear that wise progress in the future can be made only through wholehearted co-operation between the official health authorities and the local medical profession. The successful health officer must therefore be a man who can deal with these complex problems in the spirit of a statesman and who can preserve

1. Sir Arthur Newsholme. Public Health and Insurance. Baltimore, 1920.

intimate personal contacts with his medical colleagues, meeting them halfway in a joint effort to lighten the burden of preventable diseases. It will not be enough if he is merely the docile mouthpiece for temporary and ill-considered prejudices which may dominate a local medical group at a given moment. It will be equally disastrous if he goes his own way without reference to medical opinion and achieves a short-lived triumph by trampling on such opinion with the iron heel of official power. The health officer of the future must be a recognized leader among the medical men of his community and such leadership can only come through a combination of expert knowledge and character, of wisdom and personality.

THERE is a certain resistless logic about the public health movement which works itself out along surprisingly parallel lines in many different sectors of human life. At this season of the year announcements made by Lehigh, Antioch College, and many other institutions of learning remind us of the way in which such general tendencies are manifesting themselves in the development of machinery for the protection of the health college students.

University Health Services

First of all comes the control of the general environmental conditions which affect student health, the inspection of dormitories, the ventilation of classrooms, the provision of safe drinking water, the supervision of the swimming pool, the wrestling mats and the like. Something of this kind is of course provided for in every institution of higher learning. Soon it becomes evident, however, that a clean environment is not enough, that the human body itself manifests many defects which can, and must be, remedied if health and efficiency are to be secured. So a system of physical examination is introduced, first, perhaps, only for freshmen, then annually for all undergraduates, then for graduate students as well. Such a system soon demonstrates its inestimable value; and it is almost inevitable that the detection of physical defects should involve a certain amount of medical treatment as well as hygienic advice; for medical treatment is today often largely hygienic advice. Soon the treatment of ambulant disease is provided at the university dispensary; and in a few years the demand is almost certain to arise for the care of bed cases on what amounts to an insurance plan,

a fixed sum being added to the student fee to cover a complete system of health protection.

The course of development is in many respects strikingly parallel to what has happened in the public schools. So far as colleges and universities are concerned the path and the goal are so clear and inevitable that educational authorities who are still hesitating on the road might as well make up their minds to follow it through. As the advertising man and the salesman say: "Eventually, why not now?"

HISTORICALLY, the primary function of the industrial physician was to render first-aid in cases of industrial accidents. Then the scope of his work expanded to include the first treatment of cases of illness arising in the factory. Then came the physical examination of new employees, and, in certain plants, continued treatment of sickness and

Ambitious Industrial Service

home visitation of the sick in their homes by the industrial nurse. Exactly the same tendency toward an almost inevitable expansion is displayed in the field of industrial medical science. The development of the conception of industrial medicine to its full logical extreme has been worked out at the plants of the Endicott-Johnson Company at Binghamton, N. Y.

In this establishment the medical department renders without charge complete medical service, in plant, home, and hospital (exclusive of certain specialties), not only to all its employees but to all the members of their families. Three plant dispensaries and a maternity hospital are maintained with a staff of twenty-seven physicians and fifty-one nurses, while hospital service and certain types of special service are arranged for by the use of local hospitals and physicians. The total cost of the service is close to four hundred thousand dollars a year which, for sixteen thousand employees, amounts to about twenty-five dollars per capita but, for the actual population served (on the assumption of five to a family), to five dollars per capita.

This ambitious experiment in industrial medicine will be studied with keen interest by all thoughtful students of medical organization; and we hope to secure an extended description of its workings for a forthcoming issue of *THE NATION'S HEALTH*. Assuming the actual quality of medical service rendered to be at least as high as that which the industrial worker could obtain outside, the advantages of such a plan would appear to be enormous from a health standpoint; since

it is very clear that the men and women for whom such service is provided gratis will be far more ready to use medical aid as a preventive than if a direct financial responsibility were involved.

Whether the financial burden of what is practically a gratuitous insurance plan for medical service should be wholly borne by the employer, as in this instance, or should be shared by the employee, or perhaps by the state as well, involves problems for the economist and the sociologist rather than for the sanitarian. It may be pointed out, however, that the cost of the whole service is estimated at about 1.5 per cent of the payroll of the company; and apparently the firm feels that the outlay is warranted by the higher efficiency and the greater good will on the part of the employees which result in this provision for their health and that of their families.

A REPORT by Pearl and Reed¹ on the probable future population of New York City opens up alarming vistas for those who deplore the present tendency toward urbanization. Pearl's

New York's Future Population

formula corresponds to a curve which rises gradually at first, then rapidly and then more slowly again, a formula which is almost certainly more accurate than one which

assumes a straight line continuous increase. The metropolitan district of New York appears to be now only at the beginning of its period of rapid growth, a period which began about 1900 and according to Pearl should extend nearly to the year 2000 without appreciable slackening. If these estimates are correct the total population of the metropolitan district in the year 2000 will be over twenty-eight millions with a density of over five thousand persons per square mile. Within a small inner zone, including the present New York City with Hudson County and Newark, N. J., a population of nearly eighteen millions with a density of over forty-eight thousand persons per square mile is indicated. As Pearl points out, however, the population growth of a given densely populated area is dependent upon what goes on in less thickly settled regions from which its subsistence must be drawn. Much may occur within the next seventy-five years to save us from the problems created by a city of thirty million souls.

THE sewage disposal problem which confronts the second city of the United States is of more than local interest, on account of its inherent importance and also on account of the problems of general policy which are involved.

Chicago's Sewage Problem

The Sanitary District of Chicago was organized to devise and to execute the best methods

of eliminating the menace to health involved in the discharge of the sewage of the metropolitan district into Lake Michigan. Its primary purpose was accomplished by the construction of the great drainage canal which reversed the flow of the Chicago River and created a new channel two hundred feet wide discharging southwestward from Lake Michigan into the Des Plaines River and carrying the sewage of the city entirely outside the watershed of the Lake. For a time this method of disposal was notably successful. The attempt of the state of Missouri to secure an injunction against the operation of the canal on the ground of a menace to the water supply of St. Louis was dismissed; and the possibilities of dilution as a method of sewage treatment were strikingly demonstrated.

Dilution processes depend, however, for their success upon a delicate balance between sewage discharge and diluting volume. As the population of the district and the quantity of its industrial wastes increased, oxygen in the canal and in the river below became exhausted and it was obvious that the artificial treatment of the sewage before discharge must be provided for. The elaborate studies which have been conducted in regard to this problem have been presented in a previous issue of *THE NATION'S HEALTH*¹ and the progress already made in the actual treatment of Chicago sewage is described elsewhere in the present number by the Sanitary Engineer of the Sanitary District.² Chicago has done her part in coping with a difficult situation; but in order that success may be attained it is absolutely essential that she should be permitted to use the full amount of diluting flow from the lake (10,000 cubic feet per second) for which the canal was designed. The complicated legal history of the attempt to limit the volume of water thus diverted from the Great Lakes drainage basin is fully discussed by Mr. Pearse. It is sufficient here to point out that the influence of the canal upon lake levels is insignificant; that the limitation of the diluting flow of the canal to much less

1. Pearl, Raymond, and Reed, Lowell J. Committee on Plan of New York and its Environs, 1923.

1. Eddy, Harrison P.; Complexity of the Sewage Disposal Problem of Chicago, *THE NATION'S HEALTH*, September, 1923, p. 597.

2. Pearse, Landon; The Sanitary District of Chicago. *THE NATION'S HEALTH*, October, 1923, p.

than 10,000 cubic feet per second will entail a cost of over one hundred million dollars, and that effective engineering works which would really regulate the lake levels would cost only two millions and a half. Whatever interstate and international jealousies may be involved the engineering facts are clear. It is to be hoped that Congress will accept a rational and constructive view of the situation and take the necessary steps to legalize a sensible solution of the problem involved.

WIDE publicity has been given in the daily press to an article by S. Dana Hubbard¹ on the statistics of alcoholism in New York City, from which Dr. Hubbard draws sweeping conclusions in regard to the alleged failure of the prohibition laws. He cites figures which indicate that admissions to hospitals for cases of alcoholism, and arrests for

Alleged Failure of Prohibition

drunkenness, have increased between 1918 and 1922, apparently considering (and certainly leading the unwary reader to consider) 1918 as a normal pre-prohibition year. Fortunately, however, Dr. Hubbard quotes one more table, of deaths reported to the Health Department, from alcoholism, wood alcoholism, and acute alcohol poisoning; and these figures, unlike the others, go back to 1910. In his discussion of this table the author again uses 1918 as a norm and points out that the number of deaths from the three causes cited in 1922 (295 deaths) "is actually greater than that of 1918 (257) prior to national prohibition."

Perhaps Dr. Hubbard may not have heard that there was a war on in 1918, that a large proportion of the young men of New York were in the army, and that the rest of the population were in a somewhat serious and ascetic mood at that time. In any case, his table shows that between 1910 and 1917 the number of deaths from alcoholism and wood alcoholism and acute wood alcohol poisoning never fell below 565 and averaged 626. In 1918 it fell to 257. It fell further to 127 in 1920 and has since risen, but the figure for even 1922 (295) is only 47 per cent of the average for 1910-1917. There can be no doubt that the same relation would have been indicated for hospital admissions had the figures been fully quoted. The experience of 1922 is indeed disheartening but it does not show that prohibition does not prohibit but that it effects only a 47 per

cent reduction in the death rate from the causes concerned. That a man of scientific training should use the 1918 figures as a basis for comparison and ignore all the experience of previous years is a somewhat surprising instance of statistical fallacy. It deserves this editorial comment only because it is typical of much popular anti-prohibition literature, from sources of less seeming weight and authority.

THE generally higher incidence of bubonic plague in warm climates has long been obvious but it has remained for Robertson¹ to collect statistical data indicating the force and generality

Plague, Fleas, and Temperature

of the temperature factor in governing the spread of this disease and to suggest a plausible explanation. Robertson's figures indicate that plague of the bubonic type is roughly limited to a zone girdling the globe between the thirty-fifth parallels of north and south latitude. Of a series of nine million plague cases reported during a quarter of a century, 99.8 per cent have been from areas with mean midwinter temperatures of 56 degrees F. and over. If we exclude India, out of two hundred thousand odd cases 94.7 per cent have occurred in areas with a mean midwinter temperature of over 56 degrees, 4.5 per cent in areas with a mean midwinter temperature of 46 to 55 degrees and only 0.1 per cent in cities with a mean midwinter temperature below 35 degrees.

The explanation of these phenomena suggested by the author is the possibility that the rat flea is highly sensitive to low temperature and that in cold climates the fleas diminish in winter to such small numbers as to be unable to keep up the transfer of plague virus from one rat to another, so that the plague virus itself will shortly perish in its turn. The first step in the testing of this theory must of course be the determination of the actual prevalence of rat fleas at different seasons of the year and this study we understand is now being actively prosecuted by agents of the United States Public Health Service. If Robertson's views should be substantiated, his hypothesis will help to clear up many obscure points in the etiology of this still mysterious disease.

Department of Commerce reports indicate that more than fifteen million persons, or more than twenty-seven per cent of the population of the United States, live in zoned cities.

1. Why Does Not Prohibition Prohibit? New York Med. Jour., July 18, 1923.

1. Public Health Reports, July 6, 1923, Vol. 38, p. 1519.

Habits of Posture As Related to Health and Efficiency

Symmetrical Bodies, With Hard Abdominal Muscles, and Organs Competent to Perform Their Functions

BY FLORENCE A. SHERMAN, M.D., ASSISTANT STATE MEDICAL INSPECTOR OF SCHOOLS, ALBANY, N. Y.

THE demand of the world today is physical and mental efficiency on the part of men and women in every position in life.

Human efficiency depends upon the strength and endurance which make it possible for a person to do continuous work satisfactorily. Hence, the importance of a well balanced healthy body in order to obtain maximum results. We are so accustomed to badly poised bodies and to seeing people both old and young who walk with shambling gait, that we scarcely notice these defects. We even tolerated a few summers ago the "debutante slouch" which is now yielding its harvest of badly shaped bodies and ill health. The posture of children in school and men and women at work is almost universally bad—bad seating is often responsible for this. Nearly every organ in the body is obliged to readjust itself to meet the conditions forced upon it by bad postural habits. In this paper, time will not permit going into all the results of the common faulty habits of posture. Take the slouch, the stooped shoulder for instance; this last favors inception of tuberculosis, and in girls and women tilting of the fundus of the uterus is found almost invariably—lying frequently beyond the median line of the body,—crowded over by the intestines which fall into the larger space on the lower side. Enteroptosis also is common with its fearful brood of toxic substances which lower vitality and render the body susceptible to disease. Normal poise of body in standing, walking, and sitting is an important element of health and efficiency because it places all the muscles and organs of the body in the best possible position for the performance of their functions.

Good Posture

What is good posture? (Ward Crampton)

"Good posture is that position of the body which makes it possible for a man to do his work, day in and day out, with no useless expenditure of

energy, permitting normal function of all organs of the body." Good posture is for life, and life is a test of endurance. Good posture indicates vitality, we know it when we see it—because we feel the strength behind it. There are four essentials to good posture: Head and chest high, back straight, abdomen flat.

We are all familiar with the various forms of ptosis: (1) *Skeletal ptosis*, the downward displacement of the bones shown in the drooping head exaggerates spinal curve, flattens the chest, etc. (2) *Visceral ptosis*, the downward displacement of the viscera; usually accompanies the skeletal. (3) *Circulatory ptosis* shown by venous stasis, a collection of the blood in the abdominal veins and arteries. (4) *Emotional ptosis*, present when there is depression of spirits, this showing the close correlation between the mental and the physical.

It is impossible to imagine anyone being riotously happy in poor posture. Men, women and children today are strong or weak as their abdominal walls are strong or weak. The importance of beginning early in child life to develop back and abdominal and foot gymnastics cannot be over estimated. Strong muscular walls hold the bulk of the digestive organs up out of the pelvis and help prevent intestinal stagnation. A straight back is an old good posture ideal and an excellent one. In olden days children were strapped to a board for some time in order to make them straight. We all have seen the old straight back chairs and the long wooden benches in the schools which our grandfathers and grandmothers used—children had to use their back muscles, and many of the older generations put this present one to shame. To acquire good posture is a simple thing to do, and such a serious thing not to do. The process is mental as well as physical. It means much to children in their plastic years. It is a health habit to be acquired early in life and maintained.

Any factor which limits or prevents

a growing child from engaging in what we term "normal activities" must be considered a menace to its health and taken into serious consideration. A child may fall well within the accepted limits as to weight and height and yet be so handicapped by physical limitation that normal activities are seriously interfered with. That posture which so largely determines the manner in which we use our bodies has a very decided influence on our activities and so on the health of the young and old will not be gainsaid I am sure by anyone who has given this aspect of development careful thought. Golthwait of Boston says: "To stand erect and walk easily, to have all parts of the body so adjusted that easy balance and brace may result is to be desired for far more important reasons than the esthetic; such elements are necessary for perfect health."

Poor bodily mechanics often explains why a child is not enjoying the health and development it should and may even explain acute conditions which may be affecting it. Therefore careful examination of posture should be a part of every medical examination and correction of the postural fault should be insisted upon.

In childhood the correction of faulty posture is comparatively easy. The child is but the forerunner of the adult. Its conformation forecasts what manner of man will result when maturity is attained. Hence the importance of beginning early. Every child has a right to be well born, to receive a symmetrical body,—with organs competent to perform their function. He also has the right to begin adult life without physical and mental handicap. We all know the long physical struggle that lies before the boy and girl who inherits the tall slender form, the one with long spinal column, narrow shoulders and hips with a heavy head balanced on a slender neck. Only under the most favorable environment and skilled physical direction can such a type hope to acquire the body sym-

metry and endurance needed in life. I believe the schools should place more insistence on the bearing of pupils not only in the class rooms but at all times. I believe the basis of our physical training should be good body mechanics. This would be almost revolutionary at the present time. If our physical directors succeed in giving to growing boys and girls good postural and good breathing habits, they will be rendering the greatest possible service. This is not to say that general athletics are lacking in value, but the basic thing should be good body mechanics. One needs but to glance at the backs of children seated in almost any classroom to see stooped shoulders and flat chests in the making. An examination of the seats and desks shows one cause.

No argument is needed to prove that the person who stands erect and is well poised is better able to attain success than the one who slumps. Good posture habit is not only a health measure but has decidedly favorable influence upon personality. The result is far-reaching when it is considered that the common postural conditions in school children include: Tilted head, round shoulders, crooked backs, bow legs, uneven shoulders, foot deviations, knock knees, and cramped abdomens.

The nurse can aid in these conditions by:

- (1) Noting the postural defects in her various contacts.
- (2) Referring all cases showing such defects to the school health and physical directors.
- (3) Emphasizing in class room talks the importance of good posture.
- (4) Making frequent suggestions to the individual children affected and supporting this work by contacts with parents.
- (5) Noting the adjustments of seats and correcting unsatisfactory conditions.
- (6) Including in health talks the subject of foot hygiene, and the importance of proper stockings and shoes.

The state of Ohio, whose population of about six million persons makes it the fourth largest in the Union, is served by six thousand physicians in active practice, according to the *Ohio State Medical Journal*. The A. M. A. directory lists eight thousand, of which number there are about six hundred in state, municipal, and industrial positions. The average is given as about nine thousand sick calls a year per physician.

Etiology of Rickets

THE history of rickets is that it has been enriched by a wealth of new hypotheses but few new facts, is a statement from Albu and Neuberg with which Edwards A. Park of the department of pediatrics, Yale University School of Medicine, opens a discussion of the etiology of this disease in the *Physiological Reviews*, January, 1923. Professor Park continues by saying that this statement made in 1908 is no longer true, for in the past four years facts of the greatest value have been discovered. A critical discussion of these facts then follows. The bibliography, containing 141 titles, including several papers by the author, attests the comprehensiveness of this paper.

"Rickets is a disturbance in the metabolism of the growing organism of such nature that the salt equilibrium, in particular as regards the calcium and phosphorus, in the circulating fluids is disturbed, and lime salts no longer deposit in the bones. Lime salts may not deposit because the ionized calcium in the blood is low, or because the ionized phosphate is low, or because both are low. When, however, the calcium in the blood is low, the formation of new bone and the destruction of old calcified bone (umbau) is greatly accelerated, and the pathological process takes on a distinctive character. But no fundamental differences exist between the low calcium and the low phosphorus forms of the disease. Increasing knowledge concerning rickets has made it necessary to broaden the view in regard to the characteristic pathology and admit to the disease all disturbances in metabolism in which lime salts cease to be deposited in the bones and cartilage."

The first detectable sign of rickets is probably a diminution of the inorganic phosphorus or calcium of the blood. It is most prevalent in those nations whose wealth and industrial prosperity have brought about the most complete change to artificial conditions from the simple environment which nature intended. It occurs chiefly in North America and Europe and is found almost exclusively in the cities. "Savages may starve and may become the victims of pestilence, but they do not develop rickets." Rickets occurs rarely in the Arctic regions and rarely in the tropics. In general only those animals that man has completely domesticated or those which he keeps in close confinement are sub-

ject to attack by this disease.

The extent of the disease in some cities is shown by the fact that 96 per cent of the infants dying in Dresden between 1901 and 1908 showed evidence of rickets.

The cause of rickets is a deficiency in the regulatory influence of radiant energy or of the unknown factor in food associated with it, but in all probability distinct from fat-soluble vitamin A. It is further stated that " . . . confinement, infection, bad hygienic surroundings (considered apart from the absence of radiant energy), exercise a deleterious influence in rickets, further weakening an organism already suffering from a disabled metabolism.

"The general character of the relationship of infantile tetany to rickets has become apparent, but the exact nature of the metabolic disturbance necessary for the development of tetany remains obscure If tetany can be considered a disease, then it is the same deficiency disease as rickets; it is cured and prevented by exactly the same means and differs from rickets only in the fact that the salt equilibrium in the blood happens to assume a special form or forms." Tetany appears to be a symptom complex which occurs in rickets when the disturbance in salt equilibrium is of such a nature that hyper-excitability of the nervous system is produced.

Professor Park closes his excellent bibliographical review with the following statement: "Rickets is indeed a price paid by man for his abandonment of a life of out-of-doors and a natural diet for life in houses and a diet in denatured foodstuffs; it is a sign of the operation of the immutable law of nature that nothing out of accord with her shall flourish."

Oregon has passed an act (*Ch. 28, Laws 1923*) to provide for a department of research and guidance in public schools in school districts having a population of ten thousand inhabitants or more, defining its duties and functions, defining the term "educationally exceptional" children, and authorizing the board of directors of such districts to establish special classes and special schools for such children, and authorizing the board of directors to require the attendance of such children at such schools.

The Parent-Teacher Association in the United States now includes in its membership 537,000 persons.

Iodin Treatment of Water*

BY BEEKMAN C. LITTLE, SUPERINTENDENT OF WATER WORKS,
ROCHESTER, N. Y.

THE Water Bureau and Health Bureau of Rochester, N. Y., working together, have evolved a plan for the successful iodine treatment of public water supplies for the cure and prevention of goiter. It is stated here with especial emphasis on the value of preventive methods in health work in the hope that it will be earnestly considered by health departments and medical officers wherever goiter presents an extensive problem.

It is to be understood that the author is not stating on his own authority any of the medical aspects of the question, but has widely gleaned these matters from the writings and opinions of medical men in high repute.

Simple goiter, generally recognized as a swelling of the neck due to the enlargement of the thyroid gland, has probably come to the attention of everyone. The extent to which goiter prevails is seldom appreciated, however, for in the entire world there are but few countries free from goiter districts, and sporadic cases exist in every section and in every nationality in the world.

In North America, the disease is endemic, that is, especially marked and continuously prevalent in the whole of the Great Lakes region and in the basin of the St. Lawrence and in the North-west Pacific region.

The seriousness of the disease itself can be learned with but little investigation. There is a definite relation between disease of the thyroid and cretinism or idiocy, marked by physical deformity and degeneracy.

Statistics are not always reliable, but it is safe to say for instance, that in this region along the Great Lakes, in Detroit or in Rochester, that seven out of every one hundred school children are afflicted with goiter, and further, it is conservative to say, that a large proportion of all the women consulting physicians, have the disease.

Certainly this is a disturbing condition and any promising suggestion for its alleviation should receive at least respectful and thoughtful attention.

Now, iodine is a natural constituent of the normal thyroid gland, and one that is essential to normal thyroid

activity. The amount of iodine required is exceedingly small, but when this amount is absent, the thyroid gland seeks by increase in size and surface to make up for this lack in iodine, and goiter is the result. In fact goiter has been described as an adaptation to "iodine-deficient" nutrition. It follows therefore that the treatment for goiter, now pretty generally practiced, is giving of very small dosages of iodine.

An accredited prescription is: 1/10,000 of a gram of iodine administered daily over a period of fifteen to twenty days, this given twice a year, once in the spring and repeated again in the fall.

A recent study from the laboratory of the University of Minnesota, by Dr. J. F. McClendon, shows very clearly the inverse ratio between the amount of iodine in surface water and in the distribution of goiter. In the neighborhood of the sea, the air and water contain very much more iodine than in inland places, and these places distant from the sea, exhibit the goiters.

What we propose is really very simple, namely, to introduce into the drinking water a very minute quantity of iodine and thus bring to the human system and the thyroid gland, that which it needs, and otherwise lacks, to function properly.

This idea of dosing every one willy-nilly is startling but not unknown, and not altogether revolutionary. For instance, in Switzerland, where goiter is very prevalent, it was decided in one canton last February to incorporate a small amount of iodine in all the table salt used. All civilized persons take daily, a certain quantity of salt, and, as it is inexpensive, and as the Swiss Government can control this article of food, it seemed to be the proper carrier for the iodine. This way of doing it—even if it were possible in this country—does not seem to contain, however, the advantages of the water supply method.

In recommendation of our plan in Rochester, Dr. Goler, the health officer, makes among others, the following recommendations:

(1) We always have in Rochester, among our children, more than two thousand cases of preventable goiter.

(2) We have so much simple goiter

because of the absence of minute quantities of iodine in our food and drink.

(3) We may prevent this goiter by the addition of minute quantities of iodine to the drinking water 2/10,000 of a gram to a gallon, in the form of iodine of soda.

(4) Iodine seems to be required by the body and when taken into the body in these minute quantities, it is fixed by the thyroid gland and so prevents its enlargement, and consequent goiter.

(5) If we put iodine in the water, it will only be necessary to dose the water twice a year, for two weeks. This would require daily 13.3 pounds of iodine of soda for two weeks, or 372 pounds at \$1.80 per pound, or \$1,785 a year.

(6) Goiters of course are subject to cure only after they have developed. We should like to prevent them. To prevent these goiters would cost less than two thousand dollars a year. The addition of this minute quantity of iodine would also affect favorably young persons already having goiters. It would not affect that form of goiter known as "Grave's Disease" or exophthalmic goiter. It would not affect the older types.

The Water Bureau at Rochester has already started this treatment of the water. At one of our reservoirs, from which is drawn all of the water entering the city mains, we have dissolved daily—for a period of two weeks—sixteen pounds of iodine of soda, a slightly greater amount than first suggested.

Our consumption of water during this period was approximately twenty-five million gallons per day. In the laboratory of the Health Bureau and checked up by chemists in the University of Rochester laboratory a close track was kept, and it was found that the iodine content in the water increased from one part in a billion parts of water before the experiment, to twenty parts in a billion.

Next fall the dose will probably be increased, as it is planned to get about fifty parts of iodine to one billion parts of water.

Such a water, prevailing for two or three weeks twice a year will, it is calculated, give to those drinking of it freely, approximately the required dosage of iodine to bring to a close the story of simple goiter in Rochester. Perhaps from this point, its extinction even throughout the world will begin—Who knows?

*Presented before the annual meeting of the American Water Works Association, Detroit, Mich., May 21-25, 1923.

Eye Strain of School Children

*When Absolute Freedom of Adjustment for Comfort Is Not Permitted,
Then Mechanical Measurement Must Make the Essential
Adaptation to Physiological Needs*

EYE STRAIN as found among school children dates from the very beginning of their entrance into the school building, although it is less acute in the kindergarten classes because of the arrangement in the seating of the children. "I first noticed this several years ago while making an inspection of kindergarten rooms," stated Dr. Isaac D. Brown, medical inspector of public schools, Seattle, Wash., in a recent interview. "It happened to be a very bright day and, while watching the children, it was noticed that several of them would move their chairs so that the light fell upon their sides or backs, while those who sat facing the light were scowling. Upon examination of the latter it was found that the pupils of the eyes of these children were contracted. Upon inquiring of the children who moved their chairs why they did so, they could give no explanation, but I kept this incident in mind and frequently observed it. The teachers, when asked regarding the light, invariably said that they had very little, if any, trouble because the seats were not fixed and the children were permitted to move their chairs about so as to obtain the best light possible."

"When the child leaves the kindergarten for rooms fitted with the stationary seat, his exposure to eye strain becomes a factor in every school room where the seats are placed parallel to the light. It is not only the arrangement of the seats, but their finish as well that is of the utmost importance. The highly polished surface of the ordinary seat is as great a single factor in causing eye strain as anything we have to contend with. The architect, in times past, was perhaps one of the greatest single causes of eye strain. He would never meet one half way in discussing

the lighting of the building. He had certain lines which he felt must be followed. In others words, beauty must be maintained regardless of the effect it may have upon those who were compelled to occupy the buildings, but of late there is a tendency to follow specifications of experts and sacrifice beauty lines for the benefit

(3) The glare from the highly polished surfaces.

(4) Story or study reading at home by poor lights or none at all.

(5) Distance at which work is held.

(6) Poorly lighted black boards.

Most of the causes of eye strain are preventable. At least, all of the

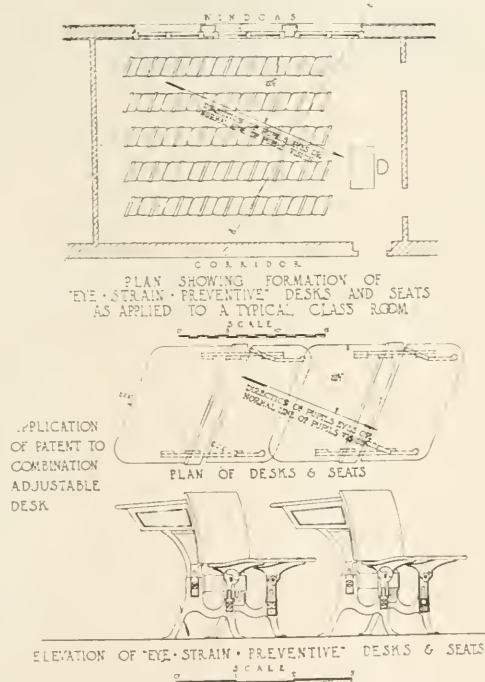
factors entering into the causation during school life may be eliminated by a re-arrangement of the seat so as to bring the light over the shoulder rather than across and in front of the eyes. There is at least one desk on the market that practically solves this problem and that is a desk which is constructed so that when the child is seated the source of light falls over the shoulder, doing away with all glare and preventing contracted pupils from strong light in the eyes.

It has been pointed out that something should be done to improve the condition of pupils seated at the ordinary rectangular desk with the strong light at the left and front and also with strong rays of light reflected from the highly polished desk tops to the left and front of the pupils.

As it is difficult to change or modify the lighting of a classroom the logical solution seemed to be to plan equipment so that the child will be turned from the source of light as much as possible, while at the same

time his position will remain uniform with regard to the other desks and aisles.

For a number of years architects have arranged the seating of class rooms so that the aisle and desks extend diagonally with the room, but this has been found a rather unsatisfactory arrangement in respect to appearance as well as the maintenance of discipline. A desk designed to combine the advantages of both systems is rhomboidal in shape, thereby turn-



The desk pictured is so constructed that the light falls over the shoulder of the child when seated, and all glare is eliminated.

of the children."

"Eye strain is variously estimated as affecting from 3 to 6 per cent of all school children. All of this is not due to poor lighting of schools, but I feel that most of it may be so charged. After years of observation, I would attribute eye strain among school children to the following causes:

(1) Poor lighting in the school room.

(2) The arrangement of the seats.



A class room in the high school of Modesto, Calif., where seating and lighting arrangements under the principles outlined favor the eyes of the children.

ing the normal line of the pupils vision 22.5 degrees from the center line of the aisle, which remains paralleled with the side of the room. This gives protection from the two sources of glare, the windows and the reflected light from the desk tops.

The major axis of the desk being longer than the minor axis and lying in the direction of the forearm when writing, support of the arm is per-

mitted even when writing at the bottom of the paper. An added convenience is that sweeping the floor in rooms equipped with the type of desk described is easier and quicker because the supports are paralleled and staggered instead of parallel and opposite as in the rectangular desk, a feature which has been greatly improved by the new pedestal support now a part of this desk.

Swimming Pool Sanitation

SWIMMING pool sanitation is a problem that cannot be put off; it is present now, and becomes more urgent with each new pool constructed. states the report of the Committee on Swimming Pool Sanitation to the League of Minnesota Municipalities. Forty indoor pools and ten outdoor pools were included in the report, and about 75 per cent of them are being operated without information as to their sanitary condition.

The immediate problem in Minnesota is the adoption of standards for the maintenance of swimming pools. Quoting from the report:

At present there is no commonly accepted standard, as in the case of drinking water, so the committee as a basis for its work has taken the one proposed by the committee on bathing places appointed by the Conference of State Sanitary Engineers. Last winter a series of bacteriological examinations were made on nine swimming pools: seven equipped with ultra

violet ray sterilization apparatus, one with a chlorin machine, and one emptied and refilled every day. Later on at one of the pools having an ultra violet apparatus a chlorin machine was installed, permitting a comparison of the two systems under identically the same operating conditions.

A total of 125 samples was taken from the pools using the ultra violet rays for sterilization, one of which, by the most liberal interpretation, came within the proposed bacteriological standards. The ultra violet ray sterilization apparatus produces sterile or nearly sterile water when functioning properly; but the amount, 3,000 to 6,000 gallons per hour, added to the total volume of the pool, considering that pollution is simultaneously introduced by the bathers, is not large enough to keep the water in the pool within the proposed bacteriological limits. The quartz tubes enclosing the ultra violet ray lamps must be kept perfectly clean if the

apparatus is to function properly. In no one of the pools when first examined was this being done and as a result little or no benefits was obtained from the apparatus.

From the two pools treated with chlorin fifty samples were taken, 90 per cent of which were satisfactory judged by the proposed bacteriological standards. The action of chlorin is not limited to the water recirculated as with the ultra violet ray apparatus, but extends throughout the pool. The chlorin dose can be administered with utmost accuracy and ease and the amount of chlorin necessary to keep the pool in a sanitary condition readily determined. This is common knowledge among those familiar with the use of chlorin in the disinfection of water supplies.

One pool examined was operated on the fill and draw system, viz., emptied and refilled once a day with fresh water; the conditions here more nearly resemble those found at outdoor pools. Twenty-eight samples were taken from the pool, no one of which came within the proposed bacteriological standards. Two reasons for this were found: (1) the pool was not cleaned when emptied; (2) the bathing load was too large, conditions which obtain in nearly all outdoor swimming pools.

The problems of swimming pool sanitation are well understood, proper sanitation costs but little, and the recommendations of the committee in this regard received the full support of the League.

North Carolina has passed an act (*Ch. 661, Acts 1923*) to create in the department of printing and labor a division devoted to the deaf, to provide for the appointment of a competent deaf man to take charge of said division, to enumerate his duties and authority, and to provide for his compensation and for the expense of such department.

The simultaneous appearance of eczema in a number of persons who worked in a bust factory is reported by Charles in *Dermatologische Wochenschrift*. In the manufacturing process a paste was employed which was made by acting upon starch with lye in order to swell the granules, hydrochloric acid being used afterward to neutralize the lye. The paste was exactly neutral, hence the cause could not be either the acid or the alkali, but was caused by the use of 0.05 per cent of formalin which was introduced to keep the paste from spoiling.

Injury to Foot and Ankle

THE foot needs to be considered from only two standpoints: weight-bearing and locomotion. It is a comparatively small part of the anatomy, and yet carries the weight of the individual comfortably if mechanically and anatomically perfect. The longitudinal arch is placed in the foot for one purpose, and one only,—to give spring to the walk. The plantar fascia runs from the anterior and plantar surface of the os calcis forward in a fan shape and attaches along the heads of the metatarsals and is the bow-string which holds the bow of the arch in position. The scaphoid is the keystone of the longitudinal arch. The plantar fascia and the scaphoid maintain this arch in position. If one or both are disabled for any cause, the arch is weakened.

Dr. P. B. Magnuson, writing in *International Clinics*, brings out very distinctly the difference between flat-foot and weak or painful foot. A true, rigid flat-foot is seldom painful, for it has fallen far enough so that the foot has reached a support, namely, the ground. The height of the arch, he says, has nothing whatsoever to do with the integrity of a foot. A patient may have a very high arch and yet have a very painful foot. Another person may have a very low arch and experience no pain whatsoever in his foot. Pain is brought about by a weakening of the ligaments or an overload placed upon the ligaments. This overload may result from a sudden change in occupation from a sedentary life to an active life where weights are carried; a rapid increase in weight may

cause it; or it may result from the weakening of ligaments due to illness, toxemia, infection, or injury. He goes on to say:

The diagnosis of a painful foot should be, and is, a comparatively simple matter if it is remembered that the weight-bearing line of the body should fall from the anterior



Showing the so-called orthopedic heel which comes forward under the rear portion of the longitudinal arch and relieves the weakened musculature of the foot.

superior spine of the ilium, through the middle of the knee cap, and into the middle toe. If the weight-bearing line is thrown over toward the great toe or medially, then more strain is thrown on the bow-string of the arch than should fall there. The overstraining of the fascia that results causes much pain and very definite symptoms.

In examining the foot of a workman who claims to have been injured and complains of pain in the arch, probably the most valuable diagnostic sign is pain at the attachment of the ligaments which support the scaphoid bone. The individual does not associate tenderness here with an injury to the arch because he does not know that this bone is the keystone of the longitudinal arch. A foot which is overstrained forces this bone out from the central line of the body, thereby straining its supporting ligaments and causing them to become tender.

A weak and painful foot may result from any injury to the arch which puts a sudden strain on the plantar fascia and on the ligaments supporting the scaphoid and weakens them. If material injury is done, a permanently weak and painful foot may result and the maximum amount of pain may not appear from a number of days following the injury, especially if the individual is allowed to bear weight on this foot. Therefore, the fact that a man received an injury to the back of his foot and continued to work for some days without complaint of disabling pain does not argue against a valid injury.

After a period of complete relaxation of the ligaments involved it is necessary to give the foot support. This can best be done by placing a wedge on the inner margin of the

heel, making the inner height of the heel one-eighth or three-sixteenths of an inch greater than the outer edge. If necessary, an extension may be added in the way of a so-called orthopedic heel which comes forward underneath the arch. The shoe should be of such strength in the arch that a soft support may be put between the sole of the foot and the inside sole of the shoe as will hold this support without breaking down.

In these times such shoes are easy to procure. They have in them an arch of springy steel between the layers of leather which cannot be considered a rigid support in any way, and which allows a proper spring in the arch. Piano felt cut in the shape of a wedge and strapped to the foot gives a very satisfactory support and answers also as a constant source of massage when walking. It molds into the arch of the foot and gives enough support to weakened ligaments to relieve pain without taking away their entire work and causing atrophy through disuse. In all injuries to the feet it is the business of the attending surgeon to see to it that a patient is fitted with proper shoes.

Especially should the person recovering from an injury to foot or ankle, and persons with chronic predisposition to weak feet, be instructed in proper standing and walking positions. This is not as we have been taught in school and in the army, to stand with the heels together and the feet at a 45 degree angle, but the toes should point exactly in the direction in which the person is facing.



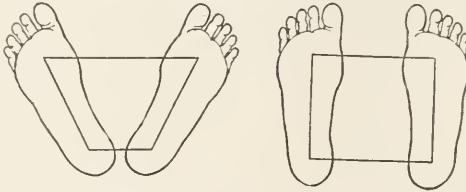
Position for weakened longitudinal arch. When resting in a sitting position, the legs should be crossed with the outside of each foot resting on the floor and the foot inverted.



A typical instance of flat-foot (left). Compare with position of the right foot, which is normal.

When one considers the mechanics it is easy to see why this is so. If one walks north and his toes and his feet are at an angle of 45 degrees, one foot pointing northeast and the other northwest, his heel comes to the ground on its outer posterior surface, and as he steps the weight of the propelling movement falls on the

integral muscles of the foot are beneficial. These exercises consist principally of standing with the toes together and the heels separated and of rising on the toes, gradually increasing the number of times the exercise is employed each day. Flexion of the toes is beneficial and inversion of the feet while sitting. This can best



Showing incorrect (on left) and correct (on right) positions of the feet in walking.

ball of the great toe, which is inside of the foot and the place where the arch is subject to the greatest strain, a strain which is increased every time he steps and pushes forward with his foot. With the toes pointed exactly in the direction of travel, the heels strike the ground exactly in the middle and when the foot which is giving the propelling motion goes back, the weight of the body falls forward and is distributed equally over the ball of the foot and the five toes, throwing the major portion of the weight on the outer side of the foot, where it should be. Over-correction of this mechanical fault is made when the patient is at first trained to walk pigeon-toed.

Building up the inner margin of the shoe aids in acquiring this position and a shoe with a straight inner line, a bulging outer line, and with

be accomplished by attempting to pick up small objects from the floor with the toes as one would with the fingers. If these few mechanical principles are sedulously followed after foot injuries, much disability can be prevented for those who need to be on the feet constantly in the performance of their duties.

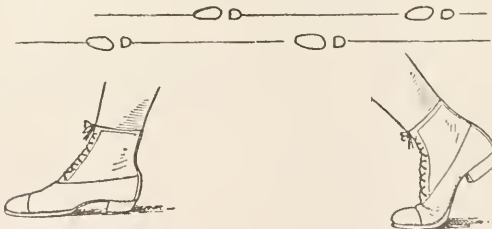
The integrity of the transverse arch is quite as important as the longitudinal arch to comfort and weight-bearing ability of the foot, and is quite as frequently prolapsed. Prolapse of this arch produces radiating pain down between the third and fourth toes which is extremely acute. If the arch has been down any considerable length of time there is also complaint of a feeling of walking on the bare bones of the ball of the foot and, if the condition persists, there develops callus at the point of great-

one-fourth to one inch thick, just behind the heads of the metatarsals. The pad can be made of felt or leather and should be built up to a thickness which is found to relieve the pain. Some cases, especially in women, can stand two full thicknesses of piano felt in this position.

In workmen with severe prolapse of the transverse arch, especially following injury, it may become necessary to put on what is called an anterior heel, which is a strip of leather the thickness of the sole of the shoe, which runs diagonally from the posterior margin of the head of the first metatarsal to the posterior margin of the head of the fifth metatarsal. This is nailed to the sole of the shoe. Injuries to the ball of the foot or heads of the metatarsal are so frequent and apparently conditions under which they may be relieved so poorly understood that this point should be kept in mind where there has been injury to the heads of the metatarsals. The same method may be employed to relieve strain on the metatarsal-phalangeal joints where there have been fractures into the joint. In the opinion of Dr. Magnuson, either a felt pad or thin leather insole placed on the inside of the shoe, or an anterior heel of leather nailed to the outside of the shoe is essential in all injuries to the heads of the metatarsals when the patient first begins to bear weight on the foot.

National Conference of Tuberculosis Secretaries Reorganize

The special committee representing the secretaries of local tuberculosis associations, the secretaries of state associations, and the National Tuberculosis Association has just issued its report on a scheme for proper co-operative relationships among the several groups. The plan contemplates the reorganization of the National Conference of Tuberculosis Secretaries, the recognition of the reconstituted conference as the official representative of state and local associations, and such alignment of committee work as will provide for co-operative solution of all problems encountered in tuberculosis work.



Showing correct way of walking—toes pointing exactly in the direction he is going. He strikes the ground with his heel exactly in the middle and as the weight is thrown forward it is distributed equally over the ball of the foot and all five toes.

the toe swung in will also aid materially. A further aid when resting in a sitting position is to assume a cross-legged posture with the outside of each foot resting on the floor.

Daily exercises aimed at strengthening the inverters of the foot and the

ext pressure. The presence of this callus is one of the best signs as to the length of time the arch has been prolapsed. This condition is easily relieved by placing a pad about one and one-half inches long and three-fourths of an inch wide, varying from

Dr. G. Sannerman, medical officer in charge of the Public Health Service of the port of Hamburg, is spending a month in the United States studying the methods of the United States health officers at the quarantine station, Staten Island.

Diseases Man Has to Fear From Dogs

NOW and again health situations arise which call for the inspection and isolation of household pets in families where infectious diseases may be contracted by them and widely disseminated in the neighborhood. Tuberculosis is such a disease, diphtheria is often thought of, and particularly the deadly rabies is directly attributed to the dog. Not much is written, however, on the measures necessary for protection from the dog. Even the physician is sometimes not in possession of data concerning some of the ordinary diseases which point to the dangers man runs from dogs. In the old days an almost essential aid as hunter, protector, friend, the dog now is kept merely as a pet, and as such is permitted to run unquestioned where he likes, to take what liberties he chooses with children, and to be far too familiar with master and mistress. Dogs as carriers of disease are discussed by Cameron in the *Lancet* (London) as follows:

The more important diseases which, in temperate climates, may be carried in this way to man are: Tuberculosis, rabies, skin diseases and parasites, and the various intestinal worms.

Tuberculosis is not infrequent in the dog, especially in large towns. Abundant opportunity for its contraction is offered in cows' milk and butchers' offal, but the disease is generally contracted from man. The dog's habits provide great chances of infection, and the danger to man in such a case is obvious. The remedy

suggests itself. The danger to human beings is too great to take any risk. Tuberculous persons should be permitted to have no pets. Whether suspected or not, the animals in any household should keep their distance and should never be allowed to clean up a plate after a meal.

Rabies occurs chiefly in the dog and is spread chiefly by dogs. The tendency of the affected animal to run long distances multiplies the danger. The disease manifests itself in the first instance by a marked change in disposition. At this stage the saliva is already infectious and the virus can penetrate any broken place in the skin or mucous membranes and communicate the disease to man. As a measure against this disease all dogs in England are subject to a six months' quarantine under conditions controlled by the department of agriculture. It is always preferable to confine a dog for observation rather than to destroy an animal suspected of rabies. The dog which started the epizootic in England is supposed to have been smuggled in by air.

The Skin and Parasites

The dog suffers from four kinds of ringworm and three forms of mange, two of the latter being transmissible to man. He is infested with two specimens of lice, neither of which will live on man, but one—*Trichodectes canis*—is very important as it acts as the intermediary host of dog tapeworm. The flea, though only a partial parasite, is represented by several species that will live on man. The first step of ridding house and dog of fleas is to destroy the dog's bedding.

The most important nematode oc-

curing in the dog is *Toxascaris limbata*, the eggs of which are easily ingested by humans, especially children, by unwarranted association with dogs. Another type of round worm frequently causes rabiform fits in puppies. About half a dozen forms of flukes (Trematodes) found in the dog occur also in man.

Of the tapeworms found in the dog two are of considerable importance. The double pored tapeworm found in the dog has been several times reported in man. This worm, which grows to about twelve or fourteen inches long, passes its cystic stage in the biting louse and in the two fleas—*Pulex irritans* and *Ctenocephalus canis*. The cystic stage is known as a cysticoid and a single insect may contain as many as fifty larvae. The gravid segments have the power of movement and they may leave the anus spontaneously and crawl into the hair, where they dry and disintegrate. The eggs thus released are taken up by the intermediate host and develop into the cysticoid stage. The infected insect is swallowed by the vertebrate host, either dog or man and the tapeworm develops in a very short time. It is full grown in a little over a month.

It is easy to see how infection takes place in children but from the number of cases reported in adults it is obvious that there has been undue intimacy with the dog. The animal has to lick himself to keep clean and the flea may easily stick to the tongue and so be transferred to china, lips, or anything else touched by the dog. Hall, giving statistics on this worm, notes that it has occurred seventy-six times in man and that as many as 238 individuals have



UNDERWOOD & UNDERWOOD



UNDERWOOD & UNDERWOOD

A motor dispensary sent out by the Peoples Dispensary for Sick Animals, New York City, is as much a health measure for people as it is for pets, for the household pet not only acquires human diseases, but transmits them widely. Safety as well as humanitarian considerations prompt their care.

California, too, has a health problem in dealing with rabies that is concerned with the care of pets. Prevention being more certain than cure, the Fresno city and county authorities are co-operating with a public effort to prevent an invasion of the dreaded and deadly rabies.

been found in a single host.

Most dangerous of animal parasites of the dog is *Echinococcus granulosus*—the cause of hydatid cysts in man and the domestic animals. Cystic stages, are often seen in animals killed for food. The tapeworm is seldom noted because of its minute size. The larvae makes its way through the intestinal wall in the blood stream and is carried to some suitable organ, frequently the liver, where it develops into the well known bladder worm. The presence of the hydatid is always accompanied by danger to the host, as the cyst may reach the size of a child's head. The infection in man can come only from the dog—from badly washed vegetables, from the hands, from the dog's mouth, etc. The dog in turn can be

infected only through carelessness in the disposal of infected meat by uninformed persons. This danger is probably the greatest that is run by man from the dog as the symptoms in the infected animal are the most vague and often absent; and there is no Pasteur treatment available.

Five other species of taenia infect the dog, but none of them in any way dangerous to man.

There are many other parasites of the dog of much less importance to man, which are dangerous to other domestic animals—serious danger—from the dog. The remedy is to treat the dog as a dog and not as a human being. He must be kept free of parasites, and all ailing animals in the household where tuberculosis is suspected should be sent to be tested.

screens should be provided and under no conditions should the hearths be placed over wooden floorings. Bedding should never be aired or dried before an open fire or close to a stove. Where rapid drying is desired, circulation of air by a fan is the safest method.

Clothes dryers should be of metal throughout and steam pipes should be protected by wire screening. Flames in gas mangles should be guarded. Gas irons should not be permitted. Pilot lights should be installed in circuits to all electric irons and current should never be left on when irons are not in use. Non-combustible stands with at least 6-inch clearance should be provided for irons when not in use.

Although electricity is the safest form of lighting, it should be borne in mind that excessive voltage will break down insulation and fuses must be properly installed and maintained to prevent overloading. Kinks in wiring will also break down the insulation. Gas-filled lamps become hot enough to ignite woodwork, paper or other combustible material with which they may come in contact. Wherever such danger exists, wire lamp guards should be used. Lamps hung on drop cords should not be tied or twisted or allowed to come in contact with gas pipes, nails or other metal.

Safety matches should be used in preference to the "striking anywhere" type and metal friction lighters should be used wherever possible for lighting gas lights and ranges. Irresponsible inmates should not be allowed to have matches in their possession. Smoking in bed should be absolutely prohibited.

Rubbish, waste paper, and soiled dressings are frequently burned in open fires in the yards. Because of the danger from flying sparks such material should be burned under boilers or in properly constructed incinerators.

In the dark, or smoke, or under panic conditions, passage through narrow corridors may prove difficult or impossible. Corridors should be wide enough to accommodate all who will use them at one time under any condition. They should be kept absolutely clear at all times, especial attention being given to the removal of wheel chairs, spare cots, and other obstructions which are apt to be left temporarily in the corridors.

All officials, physicians, nurses, attendants, and other employees should be carefully instructed regarding common fire hazards, the use of extinguishing equipment, and the method of sending in a fire alarm. In giving such instructions especial attention should be given to the instruction of new employees, who are frequently overlooked.

An editorial in the *Lancet* (May 12, 1923, 5202, p. 961) reports severe criticisms by Haldane, Collis and others of Robson's paper on miners' nystagmus, previously abstracted in the Digest for July.

Fire Prevention in Institutions

THE following recommendations regarding the prevention of fires in institutions made by the fire commissioner to the mayor of New York City are so important a basis for the saving of life and property that they are reprinted in full from the *Weekly Bulletin* of the Department of Health:

Many fires in institutions can be traced to defective chimneys, poorly installed stoves and furnaces, defective electrical equipment, careless handling of inflammable liquids, spontaneous combustion in accumulations of rubbish, smoking and carelessness with matches. It is, therefore, essential that the management of such institutions should realize the seriousness of the situation and contribute to the fire prevention measures by maintaining safe housekeeping conditions.

The most practical provision that can be made for egress in institutional buildings is an arrangement for moving occupants rapidly and in an orderly manner horizontally through fire walls or fire-resistive corridors, or across open bridges, to buildings or sections which are safe. Where buildings are large, they can be subdivided by standard fire walls equipped with automatic fire doors; thus dividing the building into two or more separate sections, with little danger of fire communicating from one section to the other before all occupants are safely out.

With adequate egress facilities come the education and organization of those responsible for fire safety, the provision of adequate alarms and systematic attention to fire and exit drills.

Great care should be taken in handling of gasoline for motor-driven ambulances, trucks or pleasure cars. Gasoline should be stored in buried and protected tanks and never handled in open containers. Gasoline should not be used for cleaning purposes, especially inside of buildings. Many of the metal polishes for brass work, ambulances and the metal work in buildings are largely com-

posed of gasoline and benzene and are highly inflammable. Naptha and benzene used as solvents for rubber cement applied to the mending of rubber gloves, hot water bottles, etc., are dangerous and should be excluded from buildings occupied by inmates. The same restriction applies to oils, paints and varnishes, which should be stored in isolated buildings. Linseed oil should not be used for oiling and polishing floors, but mineral oil compositions, which are safer, substituted.

Cotton, wool, gauze, flannelette, and bedding should be stored away from spark dangers.

Some institutions have motion pictures for the inmates at frequent intervals. The ordinary type of film ignites very easily, burns rapidly, and gives off a stifling smoke. Only approved machines properly installed in fire-resistive booths and attended by licensed operatives should be allowed. Articles made of pyroxalin plastic, commonly called celluloid, such as toilet articles, picture frames, toys, match trays, lamp shades, and candlesticks, should not be permitted inside these institutions.

Metal cans should be provided for rubbish and soiled cotton waste. All rooms in constant use should be swept daily and any accumulation of combustible material in basement and attics should be removed at once. Especial attention should be given to the removal of papers and other packing material from grocery store and supply rooms. All lockers and closets should be frequently inspected to prevent accumulations of old clothing and other combustible material.

Wherever steam pipes are found in contact with or close to woodwork of floors and walls, they should be removed or the woodwork protected. The danger lies in the heat of the steam pipes converting the wood into charcoal, which takes fire spontaneously.

Alcohol and kerosene heaters should be kept clean, filled outside the buildings and used only when necessary. Electricity or steam is much safer. Where fireplaces are used, they should be carefully safeguarded; close-fitting

School Baths Development*

*School Baths Are Justifiable Because of the Alertness After the Bath.
Personal Hygiene Because of This Service Extends to Better Care
for the Clothing and General Appearance*

SEVEN years is not such a long time, but when one looks back and realizes what has been accomplished during that period in the development of bathing in the public schools of Baltimore, it seems almost as if an eternity had elapsed, states Robert F. G. Kelly, superintendent, Baltimore Public Baths, Baltimore, Md.

A survey of the twenty-eighth annual report of the Free Public Bath Commission, for the year 1922, shows that a total of 218,376 baths were taken in the public schools of that city during the year. Looking backward to the twenty-second annual report, for the year 1916, we find that for about nine months, the attendance at the first school baths, at school No. 6, on South Ann St., was 30,400.

For a number of years, in its annual reports and by public agitation, the Free Public Bath Commission of Baltimore had endeavored to have a system of shower baths installed in the public schools of their city. As early as the year 1900, with the opening of its first indoor shower bath-house, facilities were provided and efforts were made to encourage bathing among school children. In 1902 a letter was addressed to the school board, offering to give free baths to any children sent by their teachers at any time. This offer was accepted and many children were sent. In its report for 1903, the Commission suggested to the School Board the advisability of establishing in certain crowded sections of the city, baths in the public schools, but through the lack of finances this could not be done then. In 1904, at the request of the school board, the Commission prepared and submitted plans for school shower baths, but nothing was done by the above board to put them

into effect at that time. In its report for that year, the Commission stated that "one of the gravest problems in school sanitation in the larger cities and especially in schools situated in the poorer sections, has been, not only to keep the schoolrooms in a clean and sanitary condition, but also to secure cleanliness in the dress and person of the children coming from houses which are but poorly provided with facilities for bathing." Year

help the children. From the beginning the baths were a success and at the close of the school year they were opened for the use of the general public. During the summer months the attendance was large and the baths proved a boon to this neighborhood, where there were no shower bath facilities.

In a recent conversation with the principal of this school, she stated that the baths had been a wonderful factor for good to the children and the neighborhood. The children go back to their rooms refreshed and alert for work and no ill effects have resulted.

In the latter part of 1916, after the success of the baths in School No. 6 had been demonstrated, a request from the principal of School No. 76, in Locust Point, was received, asking if bathing facilities could be provided for their pupils. This school, an old one, but with a corps of efficient workers, who, under many handicaps, had been working along modern lines, was located in a section which had few bath tubs and the children came from



Baths in School No. 17, Eastern and Linwood Avenues, Baltimore, Md.

after year, in its annual reports, the Commission stressed the need of these baths, but were unable to persuade the School Board to install them, until about the year 1913, when ten showers were installed in Public School No. 6, on South Ann St., a neighborhood consisting of people largely of foreign birth.

It was not until the year 1916, however, that these baths were put into use, after the Bath Commission had agreed to pay all expenses in connection with their operation. With the cooperation of the principal and her efficient corps of workers, a schedule was made by which each pupil was allowed twenty minutes a week for a bath.

Care was taken that the attendants, one man and one woman, should be of the type that would encourage and

homes where they had not been able to receive much personal care. Two portable baths, with seven showers in each, were erected on a lot in the rear of the school and a schedule was arranged by which each pupil could bathe at least once each week. The results were very satisfactory and in an enrollment of over nine hundred, practically all made use of the baths. In the latter part of 1921, a large, modern school building was erected in the neighborhood and shower bath facilities placed in it. For the year 1922, the first full year of their operation, a total of 62,115 patrons was recorded. The development was especially marked by the use of the baths by the general public on Saturdays, on nights during the season when the gymnasium was

*Condensed from an address by Robert F. G. Kelly, superintendent, Baltimore Public Baths, before the twelfth annual meeting of the American Association for the Promotion of Hygiene and Public Baths, Jersey City, N. J., May 11-12, 1923.

in operation and during the summer months.

A Forward Movement

By the end of 1920, baths had been placed and operated in three schools and the success of the work was so marked, that in 1921 a communication was received from the Board of School Commissioners stating that the Committee of the Board of School Commissioners on Hygiene-Physical Education had made the following recommendations:

(1) That, in planning future school buildings and improvements to present buildings, advantage be taken of the experience and counsel of the Public Bath Commission and its superintendent in the matter of installing baths in public school buildings.

(2) That the most cordial cooperation be established and maintained between the School Board and the Bath Commission in the matter of having public school baths open after school hours and during vacations as public baths under the direction of the Bath Commission.

During the year 1922, at the request of the school board, the commission prepared a standard set of plans for shower baths to be used in the new schools to be constructed under a recent school loan. These plans, calling for ten showers each on the boys' and girls' sides, with an additional open shower room on the boys' side, to permit of mass bathing, were presented to ten firms of architects who are planning the new schools. Some of these schools are to be placed in congested sections where the need for bathing facilities is great and it is hoped that when these are completed, a large extension of bathing facilities to pupils and the general public will be possible.

The mayor, recognizing the valuable services of the Bath Commission instructed each member of the Board of Architects to get in touch with the Commission to discuss details for working out the problems of bathing facilities in the schools.

Baths for Colored Pupils

An interesting development during

the year 1922, was the opening of baths in two schools for colored pupils. Living in narrow alleys and in congested neighborhoods, where bath tubs are few and far between, the need for bathing facilities among the colored people is great. In a new school, erected in 1921, shower baths were placed and these were put into operation in February of 1922. From the beginning the facilities—four showers for boys and four for girls—were taxed to their limit and we feel that the total of 39,937 patrons in a little over ten months, speaks much for the appreciation of the baths by the children.

The other school was an old one in the southeastern section of the city. In June, at the request of one of

Of this, we are giving you two dollars for a needy family, two dollars for a little work here in the school, \$2.50 to the Empty Stocking Club, which is sending tickets to the needy little ones here for next Saturday's treat, the balance, sixty-six cents for comb and brush for the bath. A balance, ten dollars, we have in bank for the social and general needs of bath." And this was from children, who for the most part live in alleys.

School Baths Employees

From observation and information gathered from various sources, we feel that in cities where "School Baths" have not been a success, the fault usually can be attributed to the fact that the operation of the baths has been placed in the hands of janitors and janitresses, and to those who are familiar with the usual type, it would seem a marvel that they ever could be successful under such auspices. In our work we have had to exercise much care in the selection of the attendants and to the fact that we have been able to get men and women of high type, can be laid much of the success of the baths. In many cases, the woman attendant has to be a mother to the children, and in fact in certain sections, the children get far more from her in the way of personal attention, help and advice, than they are able to get in their own homes.

Aside from the beneficial effects derived from the mere matter of cleanliness, a very important feature of the work at the school baths, which has developed through the interest taken by the attendants, is a general inspection of the physical condition of the children patronizing the baths. The attendants have taken a deep interest in this phase of their work and have rendered a very valuable service to the community by personal inspection for minor abrasions or eruptions of the skin, or, where conditions are too serious for them to take the responsibility, by seeing to it that proper treatment is secured for the children at the hands of family physicians or at public dispensaries. The average number of cases reported and treated from each school has



Old class room converted into shower room at School No. 108, South Caroline Street, Baltimore, Md.

the members of the School Board, an inspection was made of the above school, to see if it would be possible to install a bathing equipment at a moderate cost. As a result of this inspection, five shower baths were placed in one of the classrooms. These baths were opened in July and were used by adults and children during the summer months. Beginning with the fall school term, practically the entire enrollment of the school, nearly four hundred, made use of the baths. To show the far reaching effect of baths in the schools, at the above school a small club, known as the "In-as-much Club" was formed. One of the qualifications for membership is that the applicant must be a regular user of the baths.

A letter from this club to the author says: "The Club is spending \$7.16 for a little Christmas offering.

been about twelve hundred a year.

In many instances, children have been taught the proper way to wear their clothing and to keep them in repair. Many cases of destitution have been relieved, which would not have been known had it not been for the baths. We feel that the remarks made by Dr. Baruch, president of the American Association for Promoting Hygiene and Public Baths, in his address at the Baltimore Convention in 1916, on "School Baths," cover our experience. We quote as follows: "Baths exercise a vital influence indicated not only by the appearance of the little ones, but by their alertness in study after the bath. The

children return to their classrooms more refreshed and alert for work than they would after a half hour's exercise in the gymnasium. We believe that the bathing habit formed in school, will continue through life. On the moral side, a child when clean has more respect for himself and is more responsive to law and order."

At the present time our Commission is operating baths in seven public schools and the pupils of another school use two portables opposite it. At all times has harmony existed between the School Board officials and those entrusted with the management and operation of the baths in the schools.

unemployment protection is based on President Loree's view that one of the most constant irritations in the minds of many employees is the feeling of resentment, whether well or ill founded, against the foreman immediately directing their work. The indemnity to the discharged worker amounts, from another point of view, to a penalty on the company when a foreman discharges a worker for insufficient reason. It was believed that by giving the employee this assurance of at least partial support in case he had to hunt a new job, not only would foremen be deterred from making capricious discharges, but the employee, realizing this penalty on caprice on the part of the foreman, would be disposed to minimize personal incidents between himself and his foreman which he might otherwise magnify into a personal injury or abuse.

Employees Group Insurance

AN UNUSUAL feature of protection to workmen is embodied in the unemployment insurance paid by the Delaware & Hudson Company, Utica, N. Y., to employees discharged with cause, at the rate of fifteen or twenty dollars a week, depending on the rate of wages, for a period of six weeks after discharge. This unemployment insurance, added to the several other types of group insurance covering sickness, accident, death, unemployment, and old age, is reported by *Greater Utica* as probably the broadest program fostered by any industry in the country.

Thirteen thousand employees are insured against some or all of the risks named.

May Carry Additional Policy

Ordinary death and total disability insurance is provided by the company, without charge to the employees, in the sum of \$250 for employees of over six months' and less than two years' service; and \$500 for those of more than two years' service. This free insurance is supplemented by extensions on a contributory basis. Any employee thus insured by the company may secure an additional \$250 or \$500 by paying the very low premium for this additional amount. On policies from \$1,000 up to a maximum of \$5,000 the company pays a portion of the premium, so that any employees co-operating with the company under this plan can have a total insurance of \$1,000 at a cost of 60 cents a month; \$2,000 for \$1.20 a month; \$3,000 for \$1.80 a month; \$4,000 for \$2.40 a month, or \$5,000 for \$3.00 a month. The total insurance allowable in any case is the mul-

tipile of \$200 nearest to the average annual wages of the employee for the two preceding years.

Loss by Sickness

Loss of wages by sickness is covered by a policy providing benefits of fifteen dollars a week for a period of twenty-six weeks, beginning with the eighth day of incapacity. The premium on this insurance, which is \$1.26 a month or \$15.12 a year, is paid wholly by the employee.

Loss of wages by accident, exclusive of injuries which are covered by workmen's compensation laws, is covered by a policy carrying payments of fifteen dollars a week for a period of twenty-six weeks, beginning with the eighth day of incapacity. Premiums for this insurance, amounting to 24 cents a month or \$2.88 a year, are paid wholly by the employee. This accident policy covers the employee against accidents during the entire twenty-four hours of each day and supplements the protection afforded by the compensation laws, which, in principle, cover only working hours.

Extra-hazard insurance covering death or dismemberment from any cause, including accidents covered by compensation laws, and carrying a double indemnity for death occurring in the course of duty, may be taken by employees under sixty years of age, at the rate of \$4.00 per \$1,000 of indemnity, this premium being paid wholly by the employee.

Unemployment Insurance

Unemployment insurance is open to employees who are carrying two of the three contributory forms (additional life, sickness or accident). This

Recapitulation

Figures for all forms of Delaware and Hudson insurance, from April 1, 1922, to the end of the year, are as follows:

Life insurance, including both free and contributory policies; number of claims handled, 94; total benefits paid, \$97,050; number of employees insured free was 8,176; the number carrying additional contributory insurance was 6,665.

On health insurance (premiums paid by employees) the figures are: final settlements made, 263; claims drawing benefits December 31 were 36; number insured, 4,328; total benefits paid, \$30,111.35.

Ordinary accident insurance shows: final settlements made, 43; claims drawing benefits December 31 were 8; number insured, 4,884; total benefits paid, \$3,786.99.

Accidental death and dismemberment insurance shows: claims handled 8; total benefits paid, \$13,100; number insured, 3,821.

Unemployment insurance shows: claims handled, 8; benefits paid on 5 claims, at \$90 each, and 3 claims at \$60 each; total paid, \$630.

Total benefits of \$144,678.34 were paid on a total of 460 claims under all heads.

The San Francisco budget allowances for the current year show increases of \$46,000, or 6 per cent for playgrounds; and \$42,988, or 12 per cent, for health. A net increase of \$412,000, or twenty-eight per cent, is allowed for school building, equipment and maintenance.

New Principles in Bacterial Immunity and Treatment of Infection

Dreyer's Defatted Antigens May Mark New Era In Immunology

EVERYONE interested in the public health will find the recent work of Professor Georges Dreyer of Oxford of great significance. If further studies bear out the implications of preliminary finding and reports, the hope for an efficient weapon against the great white plague may yet be realized.

Professor Dreyer, in his paper on "Some New Principles in Bacterial Immunity, Their Experimental Foundation, and Their Application to the Treatment of Refractory Infections," published in the *British Journal of Experimental Pathology*, June, 1923, states that after a survey of the field of vaccine therapy he was impressed with the fact that in general the successes of bacterial therapy and prophylaxis had been attained with non-acid-fast and Gram negative varieties, while failures have been frequent in the attempts to utilize in the same way varieties of acid-fast and Gram positive bacteria. Exceptions are of course noted but the general division is, in the words of the author, "striking."

Since acid-fastness has for a long time been known to be associated with the presence of certain waxy, fatty, or lipid substances contained in the Gram positive bacteria, it was reasonable on *a priori* grounds to associate these substance with the failure of attempts to secure immunization by bacteriological means. From this preliminary reasoning it was decided to attempt the extraction of these lipid substances with a view to utilizing the defatted bacteria in therapeutic procedure.

It soon became plain, after preliminary experiments along these lines, that something more than simple extraction with ordinary fat solvents was necessary if the hopes of success were to be realized.

The fact that tuberculous tissue fixed in formalin, tends to show (after sectioning and mounting) fewer organisms than portions of the same tissue fixed in perchlorid of mercury, furnished the first hint as to a method of approaching this problem. Thinking it possible that the formalin destroyed in some degree the condition of acid-fastness, thereby making

some of the organisms undemonstrable by staining, treatment along this line was instituted, but such treatment with strong formalin for various lengths of time did not produce the desired result. It was then thought that some of the many other agents utilized in the preparation of tissue sections might also be in part responsible for the small number of bacteria it was possible to demonstrate in such sections. Knowing that bacteria killed with formalin retain their antigenic properties, as they also do after simple extraction with acetone, a combination of these two was tried.

The result was a reduction of the Gram positive condition to a Gram negative one. The next step was to study the capacity of bacteria to produce immune substances in the body following such treatment, (which was easily demonstrated) and finally by animal experimentation to discover whether such antigens exert a definite curative effect.

To make the preparation and use of such antigens more clearly understood, the following brief description of the application of the method to the treatment of one particular disease is given. This description is of course much abbreviated; it gives only the main features and many of the technical points are omitted.

Tuberculosis Antigen

The major portion of Professor Dreyer's work has been done with *B. tuberculosis*. In preparing the tuberculosis antigen the bacteria are grown for two or three weeks on the surface of glycerin broth and then transferred to an agate mortar. A few drops of formalin (40 per cent formaldehyd) are added and the bacteria ground to a thick homogeneous paste. From time to time more formalin is added and the grinding continued until from 150 to 200 c.c. of formalin has been added for each 5 grams of the bacteria as weighed wet. This suspension is then maintained at a temperature of 100 degrees C. for four hours, following which it is filtered through calcium-free filter paper and the residue washed three or four times with acetone or until

100 c.c. of acetone has been used.

The residue is placed in the extraction thimble of a Soxhlet apparatus having ground glass joints. The apparatus is then placed in the water bath in such a way that the extractor is partially immersed and the top of the thimble is at approximately at the same level as the water in the bath. With the temperature of the water bath at 65-70 degrees C. extraction is allowed to continue for twenty to twenty-four hours.

At the end of this time the insoluble residue is dried and ground in a sterile mortar. If the condition of acid fastness has not been removed it may be necessary to repeat this process as many as four times when the bacteria are extremely resistant.

The next step is the actual preparation of the antigen from the defatted organisms. One-tenth of a gram of the extracted bacteria is ground with sterile saline (0.9 per cent) until a paste is obtained. This is gradually diluted up to 10 c.c. while the grinding is continued. The suspension is then centrifuged five to eight minutes at 3,000 R.P.M. The supernatant liquid is drained off and suitably diluted with saline containing 0.15 per cent formalin. The residue in the tube is then dried and weighed; the value obtained being then subtracted from the original 0.1 gm. The difference thus obtained is obviously the weight of dry defatted bacteria contained in the antigen suspension. This stock suspension is then diluted in such a manner that 1 c.c. contains one fifth of a milligram of defatted bacteria. This is the *B. tuberculosis* antigen.

Defatted tubercle bacilli can be digested by trypsin, and by animal experimentation the action of this antigen was shown to be specific.

Guinea pigs inoculated with a strain of human tuberculosis ordinarily fatal to them in six to eight months were given injections of the antigen when the progress of the disease had become marked. The treated animals regained their weight and to all external appearances their health. These animals were later killed and subjected to post mortem examinations; the examinations re-

vealing apparently healed tuberculous lesions.

Similar experiments were in process with rabbits at the time of writing the original paper. The indications were, at that time, that results similar to those of the guinea pig experiment would be obtained.

Experiments with *B. anthracis* grown at 42-43 degrees C. show that under these conditions the organisms tend to lose their power of retaining Gram's stain and that this change is also accompanied by a lowered resistance to the bactericidal action of normal horse serum and to immune serum from rabbits immunized with defatted anthrax antigen.

These findings are of interest in supplying an explanation for Pasteur's method of vaccination against anthrax by the use of cultures grown at temperatures above the optimum.

Professor Dreyer is continuing experiments with the production of defatted antigens from several other microorganisms.

Tuberculosis in Man

The point which overshadows all others is, naturally, the treatment of tuberculosis in man. If the tuberculosis antigen could be digested by trypsin, as had been previously shown, it was hoped that it would also be susceptible to the disintegrating action of the body fluids of man.

No local reaction was produced when the antigen was injected into healthy animals and it was thought safe to try it on man. In the first attempt minute doses were tried on two patients with acute febrile tuberculosis of the lungs and pleurae, who for a long time had been steadily growing worse. No untoward results followed but since the doses were so small it was not possible to draw any conclusions regarding beneficial action.

Encouraged to try treatment on a larger scale the aid of others was enlisted. In reporting on these results in his original paper, Professor Dreyer refrains from any lengthy report, partly to prevent any bias to the report and partly because the treatment had been in process for but a short time. The author quotes, however, from a report from Drs. Field and Webster, under whose care the treatment was being used, the statement of these doctors which in part as follows:

We have under treatment with Dreyer's antigen sixty cases of tuberculosis; . . . most of these cases have been under our personal observation for considerable periods up to five years, and have been se-

lected for treatment as having shown little improvement under treatment with tuberculin B. E. (Koch).

Improvement has taken place in nearly all cases, and is, in our opinion, of an order which exceeds obviously, that obtainable by any other form of treatment applicable to these conditions.

This statement was based on a period of treatment extending over but three weeks, hence it is evident that such a conclusion must be received with caution. What further work will reveal, no one can say, but the prospects are encouraging.

Due to the obvious objections that may be raised to the use of the term "defatted" antigen, Professor Dreyer has in later communications to the British medical press suggested the use of the term "diaplyte," signifying "washed through and through."

The National Institute for Medical Research has approved (*British Med. Jour.*, July 14, 1923) a plan whereby fifty beds in the Hempstead Hospital, twenty for men, twenty for women, and ten for children, will be given over to the treatment of tuberculosis cases with Dreyer's vaccine; the work to be under the direction of Capt. Douglas, bacteriological director of the Institute.

Industrial Physicians Meet

The American Association of Industrial Physicians and Surgeons, meeting in joint sessions with the National Safety Council, Buffalo, October 1-4, presented for discussion chiefly topics representing the socioeconomic phases of medicine rather than the clinical aspects of disease. Pleas were made for better uniformity in requirements of medical services under workmen's compensation,—the reduction of confusion by uniform regulations in thirty-seven states on railroad trains being cited as a typical example of possible simplification of codes.

Dr. C. W. Hopkins, of Chicago, reported on traumatic and industrial hernia from a sub-committee of the American Railway Association. The recommendation was not refusal to care for the hernia in industry, but for regulation that hernia results in predisposed cases and that record of pre-examination is the only safeguard in such cases.

The presidential address of Dr. C. E. Ford presented the strategic position of the industrial position and the onus he hears with regard to the maintenance of public health. Another expression from Dr. Ford, speaking

for the association, recorded their position that training for industrial practice belongs properly to post-graduate schedules rather than to pre-medical study.

Dr. Robert Carathers of Cincinnati spoke very sanely of the habits of twentieth century cliff dwellers as being productive of artificial life and artificial death. Adjustment (or simplification, if necessary) will be reflected in a reduction of the present high incidence of accident as well as of disease. Remedial care, whether industrial disability results from accident or slow poison, requires much on the part of the plant physician.

C. F. N. Schram, Beloit, Wisconsin, made a strong plea for social adaptability on the part of the physician in industry, and for giving full weight to the workmen's viewpoint. More specifically, Frederick W. Dersheimer of Cleveland, Ohio, urged the recognition of types and the full analysis rather than peremptory condemnation of the fractious or malingering patient.

An interesting reflex of some of the differences in viewpoint was brought out by a representative of the building trades of New York who reported —on the alleged basis statistical study of his particular group—a radically different accident curve and attributed the accidents themselves to causes rather than those usually assigned.

George M. Price, representing the garment workers, analyzed the physical status of 50,000 persons in this group. This represents perhaps the most extensive data from any specific industrial group. The results obtained and their strong preference for self-administered service deserve further study.

The final session of the meeting was held at the Buffalo City Hospital. The contribution of the members of the association to the program was supplemented by lecture-clinics by Frederick H. Albee, Udo G. Wile and George W. Crile.

Inspection of the new Buffalo City Hospital, particularly of the departments devoted to physiotherapy and heliotherapy, natural and artificial, was a valuable objective sign of the times in the development of services for complete rehabilitation after sickness or injury.

Officers for the ensuing year were elected as follows: L. A. Shoudy, president; D. B. Lowe, first vice-president; Wm. Alfred Sawyer, second vice-president; Dr. Kranz, Cleveland, secretary-treasurer; with Doctors Ford, Shafer, Watson, Geier and McKinstry directors for 1924-26.

An Unusual Insurance Home

The Maryland Casualty Company's Group of Buildings Includes An Administration Building, a Power Plant, a Print Shop, a Garage, and Laundry

IN MAY of the current year the Maryland Casualty Company celebrated the twenty-fifth anniversary of its organization, March 1, 1898, the occasion being observed in May because the weather is more favorable in May than in March.

This company started in the old Keyser Building, Baltimore, in two rooms containing eight hundred square feet, has grown till it occupied its Tower Building, Baltimore street and Guilford avenue, in 1905, and made its last move in 1921 to its present location in the Roland Park-Guilford suburban section of the city.

The home office force housed in the new building numbers 962. Its outside office force is 926 and its agents number 5,881.

The home office buildings are built on a twenty-five acre tract of land, leaving ample room for future additions as the future growth of the company demands. These buildings include an administration building where the office work of the company is done, a power house that supplies heat and electricity for the whole plant, a print shop where all the printing of the company is done and a garage for the accommodation of those employees who own automobiles, besides a laundry where the laundry work of the home office is done.

In addition to these buildings, there is a club house, with an auditorium that seats about 1,300 persons, having a fine Austin pipe organ, a rest room and dance hall for the women employees, and a game and smoking room for the men. It has a cafeteria that accommodates over five hundred at a sitting, a smaller dining-room for the officials of the company and guests, a library room, and sleeping accommodations for agents visiting the home office.

The pleasures and recreations of employees are cared for in grounds for baseball, courts for tennis lovers

and general outdoor conveniences for all. Hospital and clinical service is provided in New York, and Philadelphia, Atlanta and Baltimore and will extend this service more and more in the future.

Salvaging Men

Service is the watchword of the medical section of the Claim Division. Service in its broadest sense—service to our assured, service to the injured employees and service to society.

merely assisting nature in the repair of wounds or the healing of fractures. The handicapped must be returned to industry in a condition as near normal as modern science will permit. Thus, reconstruction therapy is making rapid strides in handling the industrially injured.

With complete rehabilitation in view, the Maryland Casualty Company has opened in New York, Philadelphia, Baltimore and Atlanta completely equipped surgical and rehabilitation clinics, with every appliance to restore the industrially injured to the maximum of physical perfection which modern science permits. These clinics are all centrally located with reference to the assured and are open during the entire working day.

When an injured man enters one of these clinics, antagonistic, in pain, distrustful, he is met by a carefully trained woman who re-assures him and gets from him a brief account of his injury.

In his turn he is ushered into the operating room where he is taken in charge by a surgeon. These surgeons are carefully picked for their personality. The suffering patient realizes as soon as our doctor touches him that he is in the hands of one who knows what is best for him, and proper treatment is at once carried out.

In close communication with the operating rooms, are modernly equipped x-ray rooms with the latest type of x-ray apparatus and fluoroscopes, this latter instrument enabling the surgeon to look directly at an injured bone or joint and, without the delay necessitated by the taking of a picture and developing it, can at once institute proper treatment. Photographs for permanent record are made later.

Responsibility does not end when the broken bone has united and the wound has healed. When active treatment at the hands of the surgeon is



Auditorium of Clubhouse of the Maryland Casualty Company.

When we look back at the days before the advent of workmen's compensation laws and remember the human wrecks doomed to poor houses, or to lives of suffering through physical disability caused by the lack of proper medical care, a thrill at the changed conditions is experienced.

The Maryland Casualty Company now has a corps of approximately one thousand, eight hundred appointed surgeons carefully picked for their skill, who are at the immediate call of any of its assured. The family doctor cares for illnesses but the man with a broken thigh or a fractured skull or a damaged eye is given treatment at the hands of the trained specialist. The company placing at the command of the industrially injured, surgical service at the hands of eminent specialists which they could not possibly pay for at their own expense. Responsibility extends further than

over, the patient is placed in the care of skilled physiotherapists. There, injured joints are treated in the most approved electric bakers and manipulation is given with the idea of breaking up adhesions and giving nature opportunity to bring about a restoration of function. Devices are made for applying intense heat locally, thus relaxing damaged tissues and permitting the blood to circulate freely, a skilled masseur rubs out the soreness. Electrical apparatus through which high voltages of electricity are forced through damaged joints, generates an intense heat within the joint without the slightest discomfort to the patient.

The clinics are all equipped with complete electrical apparatus for the administration of galvanic, faradic and sinusoidal currents, especially valuable in treating injuries to the peripheral nerves. There is also complete installation of modern apparatus for the re-education of muscles and joints, weakened by disuse and stiffened by adhesions. To watch a patient undergoing a course of treatment with this apparatus and to see his interest in his graphically recorded progress toward recovery is most interesting. By such mechanical aids and with such incentives workers are restored to their old occupations without disability who otherwise would have remained burdens upon society. The results have been most encouraging and have shortened disabilities, greatly lessened the permanent handicap.

Every person accepted for employment by the Maryland Casualty Com-

pany is examined thoroughly by our physician. This examination covers the nose, throat, ears, eyes, neck, heart, lungs, kidneys, knee reflexes, and blood pressure. Many applicants are accepted with minor impairments which are cared for by the employee service division and in nearly all instances the impairments are remedied. There is provided a specially equipped dispensary, a rest room, and an examination room. From twenty-five to sixty patients are treated each day for minor conditions such as headaches, sick stomachs, lesser injuries, etc. All major work is sent to the Baltimore clinic. Every morning an absentee slip from every department is rendered to the employee service



Mechanotherapy room, Philadelphia Clinic.

cants seeking employment. An analysis is made of the various positions throughout the company, comprising a description of duties and the qualifications needed for one to satisfactorily carry on the responsibilities of

the respective positions. Every employee is periodically rated in seven specific qualities by two or more supervisors, to whom his ability and fitness for the position he is holding is best known. This data is added to each individual's record and is considered in salary increase and promotion, applicants favorably considered for employment are required to pass a thorough physical examination before final acceptance.

The company provides for their employees a disability allowance which increases according to length of service. After one continuous year's service, they are covered, without cost by life insurance, the principal of which is figured on a percentage basis according to length of service. Effort is always made to place employees in positions according to their preferences and fitness, in the belief that contentment in one's work is an important factor in maintaining health and happiness.

Employees' Club House

The club house of the Maryland Casualty Company is a large, modern and very beautiful building, erected solely as a place for the pleasure and use of the company's employees. In the ball-room three hundred couples can dance without difficulty. During the lunch hours this room is the main lounge for the girls. It is furnished with comfortable sofas, arm chairs,



Social Hall for the use of employees.

division from which a visiting sick list is made. All three day absentees are visited and in many instances two and one day absentees.

Before the sick visiting was put into force, when an absentee was reported we never knew if conditions were just as reported. Now we see and understand the necessity of a day at home. A Ford sedan is placed at the disposal of the visiting nurse to make these visits and to take any employee home who has become ill while at work.

Personnel Work

In the personnel and employment office is recorded a complete personal history of every employee, his qualifications, his preferences in the way of work, and his educational desires; similarly, there are recorded the qualifications of all appli-



X-ray and Physiotherapy room.



Operating room of the Baltimore Clinic.

and rockers. A piano and victrola are provided, also many new and "jazzy" records. The girls come into this room, some to sew or read, some to gossip, and a great many to dance; in fact, dancing is by far the most popular form of entertainment. The girls nearly always dance with each other, although men are allowed in the hall.

There is an excellent library in the club house with standard works, histories, biographies, and novels of every description. Five cents entitles anyone to take out a book and keep it for two weeks; a fine of two cents a day is charged if kept overtime. This nominal charge enables the librarian to keep track of the books and to purchase the new "best seller." The library is popular and well patronized, an average of one hundred, fifty books being always in circulation. Current magazines are provided in the reading room but not for circulation.

Corresponding with the girls' lounge is the men's smoker—a beautiful, spacious, and comfortably appointed place on the second floor of this building, where smoking, card games, chess, and reading are the forms of diversion indulged in by the men.

Another feature of the club house is the auditorium. This hall is one of the finest in the city and has facilities for moving pictures and splendid acoustics. Lectures and meetings for the employees are held in the auditorium; also "home talent" occasionally presents a play.

Last but not least there is the caf-

eteria. This is a drawing card for all. The motif of the cafeteria is white tiles with green stripes, giving a cool and clean effect. There are one hundred, twenty-five white marble-top tables with places for four at each table. Every one patronizes the cafeteria as it is out of the question to go down town for a meal, and then—why go down town, when an excellent dinner, consisting of meat, the choice of two vegetables, bread and butter can be had for twenty-three cents?

Adjacent to the cafeteria is the club store where many little necessities can be bought, and where a great trade is carried on in candy, peanuts, cigarettes, etc.

The Story of Johnny Dontcare's Tooth

"The Story of Johnny Dontcare's Tooth" is told in a set of 23 stereopticon slides recently prepared by the Toledo Public Health Association for use in its campaign of health education, in which lantern slides have an important part. One of Johnny Dontcare's perfectly good teeth went bad because of the usual cause—inattention. The slides, all of them in colors, and all but four illustrated, show just what happened to the tooth, and then tell how the loss of the tooth might have been avoided by proper care and by at least two visits a year to the dentist. By their combination of brief captions in simple words with careful drawings and amusing cartoon illustrations, the slides tell a consecutive story without the neces-

sity for a lecture or spoken address, yet they could be used to accompany a talk on dental hygiene before any audience. The Toledo Public Health Association, 401 Produce Exchange Building, Toledo, Ohio, has arranged to make sets of these slides available to other health agencies and workers at cost price.

Dental Clinics Serve Half a Million in New York Schools

Dental services, limited to children in the lower classes, more particularly 1-A and 1-B grades except for emergency cases, have been much more effectual since the twenty clinics have been established in the schools instead of detached centers.

The main activity of the dental department is preventive work, as applied to children, this means as well such reparative work as will preserve the six year molars. Operative work on pulpless teeth has been entirely eliminated. Modern equipment, including a new type of chair, electric engine and sterilizers, has been installed in most of the clinics. The dental hygienists have been supplied with a new type of prophylactic instrument, designed by Dr. H. W. Gillette of the Columbia University Dental School, which obviates, it is said, injury to the gums.

The Board of Health appointed a Dental Advisory Board of twenty-one members to study the problems of the clinics and cooperate with the Bureau of Child Hygiene in developing the best procedure and extending the work.

League of Minnesota Municipalities

Reports on Health

THE following report on health conditions in Minnesota is the report made by O. E. Locken, chairman of the Committee on Public Health made to the League of Minnesota Municipalities at the meeting held in Faribault in June. The report was fully approved and made the basis for the health emphasis of the ensuing year. The report follows:

To promote health more effectively, this committee suggests that the League of Minnesota Municipalities shall go on record as supporting the following principles:

- I. The health of a community, as with every other civic service, is purchasable not only by money, but by cooperative effort.
- II. That the attitude of the public towards public health work is not progressing with the same rate as the success of the efforts of preventive medicine itself.
- III. That the present status of local municipal health laws is one of the factors in this failure of the public to appreciate the power of preventive medicine.

To correct these conditions, and to further insure the progress of public health work, the League shall go on record as supporting the following plans:

- (A) The local Municipal Health Boards shall be made uniform throughout the State, the Board consisting of five members: (1) The health officer, who shall be a physician, and who will act as chairman. (2) The Chief of Police. (3) The city engineer or street commissioner. (4 and 5) To be selected from public at large.

In such a board, the health officer could confine his attention and responsibility to controlling infectious diseases, and in general to carrying out the laws and orders of the State Board of Health.

To the chief of police would be referred all problems of nuisances, which now the public are in the habit of placing on the health officer. This would be a means of eliminating these inquiries to the State Board of Health, which now make up fifteen percent of that Board's correspondence.

To the city engineer or street commissioner, all problems of public sanitation would be referred. The conditions of streets, alleys, sewerage, drainage, water supplies, etc., would come under this division, thus insuring adequate attention to the same.

The fourth and fifth members to be chosen from the public at large with the recommendation that at least one

of these be a woman, would contribute their interests chiefly in city clean-up campaigns, nuisances, milk control, maternity and infant welfare and child welfare, school and city nurses work and educational health work in general.

Such a uniform and standard Health Board would focus the attention of the public on the modern demands of community health.

(B) With the increasing centralization of people in cities, and a proportionate decrease in rural population, the problem of garbage, manure and waste disposal becomes an important study. Success of fly control is dependent upon proper collection of these products. With the increasing tourist trade in Minnesota, the public is entitled to the assurance that every city has adequate methods of protection from food and waste matter. With this broadened viewpoint, we recommend a modification of the present general State law, which would compel standard city and village ordinances dealing with collection and disposal of garbage, manure and waste products throughout the state. Such a law would compel the collection of garbage in suitable receptacles as heretofore in city or village, and its disposal a definite and specific number of times per week, varying with the season of the year and with the zoning of the city into business and residential sections. Such a definite, specific state law would give the local Health Boards power to act where they are now limited in jurisdiction by inadequate local charters.

(C) The municipalities of Minnesota should be encouraged to pass uniform legislation controlling the milk supply of the state. To insure careful handling of the problem it is recommended that the State Board of Health prepare model milk ordinances applicable to the various communities and urge the passage of the same as ordinances in every municipality in the state.

(D) It is recommended that the municipalities be encouraged to establish laboratories in connection with the health and engineering departments for the purpose of examining the water and milk supplies, the tuberculin testing of cattle of the community, to do meat inspection and to make examinations of food in general as might be required locally. This work to be done under the general supervision or in accordance with the requirements of the State Board of Health.

(E) We recommend that the habit of financing the local health officer's work on a fee basis be abolished, and that fixed salaries for the same, proportionate to the size of district, be granted. The fee basis used at present often places the health officer in an embarrassing position by the com-

mon statement that he is seeking the fees which his interference with other people's violation of the law brings him.

(F) With the knowledge gained in the World War that 37 per cent of the young men of draft age in the United States were rejected because of physical defects, we are astounded in the realization that no effort has been made to combat this terrible indictment of our neglect of the health of children of school age. To make progress against this condition, we believe that the attack must be made at the source of the trouble. To insure success at all, and to make this what it should be—a state problem—we recommend that special state aid be given to every school district, proportionate to the number of children, for the purpose of holding annual or semi-annual medical examinations and inspections of all school children. Such examinations and recommendations are to be recorded on uniform reports standardized by the State Board of Health, and kept on file in the records of the local school; the statistics from these to be filed with the State Board of Health; the expenses of such examinations to be controlled and fixed by State law.

It is further recommended that in schools of cities and consolidated districts where the field is large enough to warrant employment or full time school nurses, these appropriations could be used to apply on the expenses of the district for such a nurse. In the smaller outlying districts the medical examinations by local physicians would be more practical.

Conclusion

It is the opinion of this committee on Public Health that the success of public health work will be greatly advanced by concentrating our efforts in making our municipal health ordinances uniform throughout the State. Disease makes no distinction between individuals or communities, and therefore the laws governing the control of disease should find no exception, by a presumption that local conditions require a variation from fundamental facts.

Investigation as to the avenue of transmission in a small typhoid epidemic in Newman, Douglas County, Illinois, disclosed the cause to be a typhoid carrier who gave a history of the disease fifty-three years ago. Illinois Health officials report this as the oldest, in point of typhoid carrier state, of any that has come to their notice.

Activities of the National Child Labor Committee

THE National Child Labor Committee which was organized in 1904 and incorporated in 1907, and which has been fighting child labor for about twenty years, may legitimately be classed as a "health organization" although the word health does not anywhere appear in its name.

One of the most serious evils of child labor is its effect upon the physical well-being of those engaged in it. From the time of its foundation the committee has recognized this fact as may be seen in a section of the Act of its incorporation which is given below.

Throughout its entire history the Child Labor Committee has emphasized the health aspect of child labor. For example, within the past few years specialists have been engaged simply to study and measure scientifically the facts regarding the results which premature employment has upon the bodies of children. Of course the health phase is only one among many phases involved in the problem upon which the Committee has been working. The effects upon the minds and morals of the children seem to many quite as serious as the effects upon their bodies.

The functions of the Committee are embodied in Section 2 of the Act of Incorporation. This Act states that the objects of the National Child Labor Committee shall be: To promote the welfare of society with respect to the employment of children in gainful occupations; to investigate and report the facts concerning child labor, to raise the standard of parental responsibility with respect to the employment of children; to assist in protecting children, by suitable legislation, against premature or otherwise injurious employment, and thus to aid in securing for them an opportunity for elementary education and physical development sufficient for the demands of citizenship and the requirements of industrial efficiency; to aid in promoting the enforcement of laws relating to child labor; to coordinate, unify and supplement the work of state or local child labor committees, and encourage the formation of such committees where they do not exist. In accordance with the provisions of this Act, the National Child Labor Committee

has investigated problems which are closely related to child labor, viz. education, recreation, juvenile delinquency, health and mothers' pensions.

The officers of the corporation consist of a chairman, two vice-chairmen, a treasurer, a secretary, and a board of twenty-five trustees.

The office staff is as follows: general secretary, field director, publicity director, membership director, and research director. In addition, a staff of specialists as agents for the Committee are maintained for investigation in various fields.

The non-corporate membership of the National Child Labor Committee consists of about 15,000 members and contributors.

The national headquarters of the Committee are at New York City. Local membership state committees under the direction of state chairmen are maintained in the following states: Alabama (Montgomery), California (San Francisco and Los Angeles); Colorado (Denver); Michigan (Detroit); Minnesota (Minneapolis); Mississippi (Okolona); New Hampshire (Hanover); Tennessee (Nashville); Washington (Seattle); Wisconsin (Milwaukee). Besides these, the committee is affiliated with State Child Labor Committee and other voluntary welfare agencies.

The services of the Committee may be defined as administrative, field work, publicity, membership, and research.

The administrative department supervises and coordinates the work of the departments and all field work.

The field work department makes state and local investigations with reference to child labor and child welfare in general, for the purpose of standardizing laws and administration and establishing children's codes, these surveys being made at the request of the local organizations and in cooperation with them.

The publicity department publishes *The American Child*, a monthly bulletin and an office bulletin, or weekly "house organ", issues special pamphlets and carries on publicity campaigns in magazines and local newspapers.

The membership department promotes membership in the Committee as a national organization.

The research department studies, compiles, and disseminates information and statistics, with special reference to legislation; collects reports from state officials; collects abstracts from foreign publications, and puts material already in the library in usable form.

During 1922 the Committee published a book "Rural Child Welfare" which is based on a study of rural child welfare conditions in West Virginia. The Committee conducted similar intensive state surveys in Alabama, Oklahoma, North Carolina, Kentucky and Tennessee. The Committee makes local investigations of certain industries and gives legislative aid in drafting and lobbying for child welfare laws. During the fiscal year of 1922, the members of the field staff have been engaged in Alabama, Iowa, Kentucky, Michigan, New Jersey, New York, Ohio, Virginia, and also in Nebraska, North Carolina, and Rhode Island. Calls from sixteen states for general surveys, special studies or legislative assistance were not met because of limited staff and funds.

Malaria and the Railroads

The results of a malaria survey of the Missouri Pacific Railroad lines south of St. Louis brought out the fact that during the last twenty-three years the number of employees given hospital treatment for malaria by the Employees' Hospital Association averaged more than one thousand annually. This number constituted 35 per cent of all hospital admissions and 45 per cent of all sick cases. For the same period injuries and surgical cases combined totalled only 75 per cent of the malaria admissions. In one hospital over 50 per cent of all medical cases were malarial, and in addition four thousand employees received out-patients treatment for malaria each year.

The academies of medicine in the larger cities of Ohio are formulating committees from their orthopedic contingents for the purpose of supporting the new series of orthopedic clinics to be held under the joint auspices of the medical profession, the State Department of Welfare, the State Department of Health, and the Ohio Society for Crippled Children.

Buffalo Meeting of National Safety Council

MORE than three thousand delegates registered at the meeting of the Twelfth Annual Congress of the National Safety Council held at Buffalo, October 1-5. Physicians, surgeons, insurance experts, plant managers, psychologists, and engineers in representative groups bent their collective efforts toward the control of the factors involved in the waste through accident of 25,900 lives during 1922.

Whether the cost of accident is to be a charge upon society as a whole, upon industry, or is to continue to bear chiefly upon the individual sufferer, or whether it is to be attributed to the indifferent employer, the careless workman, or the type of individual who is termed the habitual accident maker is of basic consideration. The economic waste involved is of the first magnitude and accounts for the remarkable showing of the safety council group.

Constituted at first entirely of business groups—men of action with power and vision to enforce certain protective codes in industry—the movement has grown until it is one of scientific method, exhaustive inquiry and highly technical investigation. Sectional meetings of the Congress were particularly interesting. The Chemical and Rubber Section continued for an indefinite period, the powers of their committee appointed to investigate benzol poisoning, whose first report read at this meeting constitutes the most productive piece of work as yet undertaken in this important field.

A safety code for chemical laboratories was also offered in this section and mechanical methods of handling advocated to reduce accidents to a minimum.

Safety from the viewpoint of preventive medicine was brought out in many sections, especially in the joint general meetings of the Council with the American Association of Industrial Physicians and Surgeons, but the insurance group contributed much pertinent information in this regard and a concrete example of constructive effort was detailed in Leland E. Cafer's outline of the proposed intensive study of industrial diseases and accidents about to be undertaken by the New York State Department

of Labor with the cooperation of the United States Public Health service and the Public Health Committee of the New York Academy of Medicine.

The resistance to the universal efficacy of the safety idea is the impassé of ignorance which halts progress in other lines.

The 1923 Congress was particularly effective in its educational effort. The Pageant drama "Adventure" written by Thomas Woods Stevens of the department of dramatic art, Carnegie Institute of Technology, and presented by his students, differs from the dread fears of inhibitive psychology which permeated all of the earlier safety propaganda and ideals the "safe" individual as the "constructive" and "productive" individual. It is by selection—intelligent personnel work—and by educational effort with the young in our schools and during the initiative period in industry that safe concepts are fostered and safe habits enjoined. Nor were employes' activities overlooked. So the Safety movement finally emerges as a coordinating agency and its tremendous influence takes added interest as a sociological phenomenon.

The trend of some of its newer activities will be watched with interest.

An international interest was achieved at this meeting by the introduction of Sir Thomas Oliver, as chief speaker of the Congress, distinguished industrial physician and former chief of the Medical Staff of the Industrial Bureau of the British Home Office.

The remarks of Sir Thomas summarized his impressions gained from a rapid survey of manufacturing plants in the leading cities of the United States. Everywhere he notes better organization and more concentrated attention upon hygienic and health problems. Theoretically, the British Office has done more, but in practice the American executive puts more energy into the program and finds less resistance. The tragedy of the British situation is the utter stagnation that brings to fore the health evils, rather than any dangers inherent in industry itself.

He concluded his remarks with an outline of foreign study on the diseases of occupation and the result-

ing reduction of health hazard.

The final executive session of the Congress resulted in the election of the following officers:

President, L. A. De Blois, Wilmington, Del.; vice presidents, C. B. Auel, East Pittsburgh, Pa.; Marcus A. Dow, New York; George T. Fonda, New York; H. A. Renninger, Allentown, Pa.; and David Van Schaack, Hartford, Conn.; vice president and treasurer, Homer E. Neisz, Chicago.

Executive committeemen, C. B. Auel, East Pittsburgh, Walter G. King, New York, C. E. Pettibone, Boston, L. A. De Blois, Wilmington, George T. Fonda, New York, Henry A. Renninger, Allentown, Dawson R. Hall, New York, Julian H. Harvey, Kansas City, Robert E. Herdegen, Walkerville, Ont.; Colonel C. M. Hinkle, Chicago, Homer E. Neisz, Chicago, A. D. Risteen, Hartford, Herbert A. Rowe, New York, R. B. Stoeckel, Hartford.

Representing sections: David Van Schaack, Hartford, chairman street and highway safety; A. W. Whitney, New York, chairman education section; James P. Barnes, Louisville, Ky., chairman electric street railway section; F. P. Walker, Detroit, Mich., chairman ice and refrigeration and taxicab and delivery section; A. L. Watson, Niagara Falls, chairman chemical section; H. W. Moses, Boston, chairman public utilities section; Fred Metcalf, Saint Paul, chairman steam railroad section.

Doctors With Wings

The Australian Inland Mission, serving a vast stretch of hundreds of miles of sparsely populated country, rich in flocks and wool but with no direct train communication between its towns, has been instrumental in establishing six cottage hospitals in various community outposts throughout the Australian bush. It is intended that these hospitals shall be supplemented by aerial depots with flying doctors whose united radius of action will cover the whole of the continent while every section of the "outback" will be linked up by a system of wireless. Were the romance of pioneering and the miracles of modern science ever united in a more delightful fashion!

Back-Yard Playgrounds

THE increase of motor car traffic brings with it an ever increasing record of accidents to children.

We are told that "familiarity breeds contempt" and it would seem that children are becoming less apprehensive of danger from auto vehicles, despite all our safety first educational efforts.

We cannot stop the use of motor vehicles but we can minimize the number of children killed or maimed by them. Experience proves that all of the children in a district will not walk several blocks to a playground or to a play street. In fact, it is not unusual to see children playing on the street in front of a playground or outside of the barriers in a play street.

You cannot close every street and were you to put a playground on every corner you would still find children playing in front of their own doors and dashing out into the street after the elusive ball. We cannot take the ball from them nor prevent them from playing tag and the other health-giving games of childhood.

We cannot deny them their God given right to robust and happy play, but we can protect them and it is our duty to do so. We spend millions to protect life and property by increasing the efficiency of our police and fire departments and our health and hospital service, but when it comes to the child on the street the knife of the budget parer sinks deep into the asked for appropriation. We are more interested in low tax rates than in the little white coffins that pass through our streets. We forget that in the vigor and happiness of the child lies the safety and progress of the nation. We are not impressed with the fact that more than one-third of all the boys drafted in the late war were rejected because they were physically unfit to fight.

Every municipality owes it to its boys and girls and to the nation to give them a chance to become physically fit through opportunity for untrammelled play.

"The solution of the problem is simple," according to Harry H. Moore, director of Parks and Public Property, of Jersey City, N. J.

Turn the children out through the back door instead of the front. In every square block there is an open space in the rear of the houses, the combined backyards. This open space must always remain open and, where the buildings consist of large apartment houses, the open space is fixed by law. These yards are usually ill-kept and surrounded by fences. The plan is to knock down the fences, cleaning the entire space, planting here and there a poplar, Ailanthus, or other quick growing tree, a border of privet hedge or a few ball privet, with here and there a little patch of grass or flowers and you have turned the unsightly and insanitary yards into a delightful breathing spot. Now in the center a little summer house or pergola with a sand box, on either side a six swing outfit, baby swings, a couple of slides, and a basket ball standard or two, and you have a delightful and protected playground for all of the child inhabitants of that square block and all for the cost of a medium low priced automobile.

The mothers working in the rear rooms have the children under their eyes all the time and know that they are safe from the dangers of the street and at the same time they are enjoying all the activities afforded by well planned arrangement for their use and protection.

In the Jersey City plans for the installation of several of these backyard playgrounds are now actively under way.

Wide Survey Shows an Increase in Cost of Food

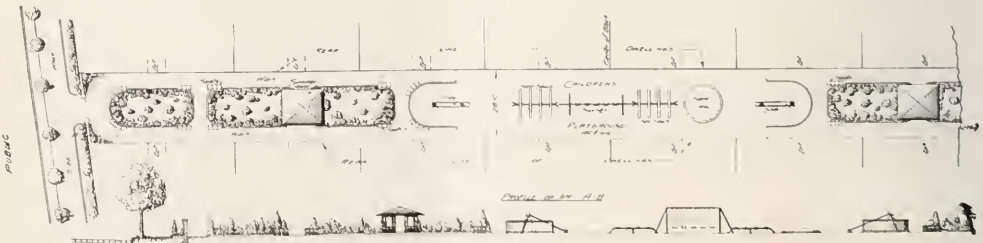
The Bureau of Labor Statistics of the Department of Labor has completed a survey of food costs in fifty-one of the leading cities of the United States. The highest per cent was recorded in Philadelphia, the increase in the cost of living being 4 per cent. Baltimore, Bridgeport, Butte, Mont., Cleveland, Detroit, Los Angeles, Louisville, Milwaukee, Minneapolis, New York, Norfolk, St. Paul, San Francisco and Washington showed an increase of 1 per cent. A decrease of 1 per cent was shown in Memphis, Mobile, Newark, New Orleans, Rochester, and Springfield, Ill. The average increase for the year ending May 15, was 3 per cent.

Hospital and School Work Allied in Alaska

The Bureau of Education of the Department of Interior has announced the increase in the number of teachers in Alaska from 133 to 144.

The schools are located in seventy-five small villages and are under the direction of a superintendent with headquarters in Seattle. The schools are established as the centers of small native villages and the teachers must act as guides, nurses, advisers in civic as well as social affairs, and in solving the economic problems and are instrumental in saving thousands of the Alaskan Eskimos and native Indians from starving each year.

Records show a wonderful work is being done in the hospitals maintained by the Bureau of Education also, seven physicians and seventeen nurses being on constant duty. The hospital at Juneau also receives native girls for training as nurses. Simple remedies and full instructions as to their use are sent to all teachers in the schools in the remote and scattered villages over the land.



Neglected rear door yards of city tenement districts can with a little thought and a very slight expenditure be transformed into life-giving and life-saving areas. This shows a typical transformation so effected in Jersey City, N. J.

LATE HEALTH DECISIONS IN THE COURTS

BY DOROTHY KETCHAM, UNIVERSITY HOSPITAL, ANN ARBOR, MICH.

WHERE an injury to an employee caused an aggravation of a prior diseased condition resulting in total incapacity, the employee is entitled to compensation for total disability under the workmen's compensation act by decision of the Supreme Court of Errors of Connecticut, July 7, 1922.

The following facts were stated in the finding and award: The plaintiff was injured by a blow on the right shoulder joint, arising in the course of and out of his employment. This injury incapacitated the plaintiff to work from August 21, 1920 to May 31, 1921. The average weekly wage of the plaintiff was \$15.05. Previous to August 20, 1920, the plaintiff was suffering from a tuberculous and syphilitic condition which had become localized in the right shoulder joint, resulting in a complete ankylosis. Said condition had become stable and would not have materially progressed without some new exciting cause, and it did not disable or incapacitate the claimant for his work as a laborer. The blow immediately "lighted up" the tuberculous and syphilitic condition previously existing and produced a condition incapacitating the plaintiff to work. If the plaintiff had been physically normal and in perfect health, the injury probably would not have incapacitated him for more than a short period of time. Public Acts 1919, C 142, sec. 1, amending Gen. St. 1918, sec. 5341 was cited as providing that, in case of the aggravation of a disease, compensation is to be allowed only for the portion of the disability reasonably attributed to the injury, but, as this provision was part of a remedial amendment bringing occupational diseases within the act, the court held that it refers only to cases involving industrial diseases.—*Bongialatte v. H. Wales Lines Co.*, 117 A. 696.

THE term "injury" according to the Supreme Court of Ohio, April 25, 1922, does not include those diseases which are contracted, as distinguished from diseases which are occasioned by

or follow as a result from physical injury.

The death was occasioned by typhoid fever, the claim being made that Cross died as a result of injuries received in the course of employment. The case turns on the definition of the term "injury." In the opinion of the Court "we are unable to comprehend how this court in the light of the differentiation which the Constitution makes between injury and occupational disease, can arrive at the conclusion that, without specifically including or excluding either, it was the intention of the legislature, in following the language of the Constitution, to include under the term "injury" disease generally, and at the same time exclude one form of disease. "In view of the constitutional interpretation and the Compensation Law, the Industrial Commission has given the term 'injury' an interpretation which excludes diseases which are contracted, as distinguished from diseases which are occasioned by or follow as a result of some physical injury, and in view of the fact that to interpret the term 'injury' as including diseases generally would enlarge the scope of disabilities . . . we hold that, if the scope of cases compensable is to be extended, it should be done by unambiguous legislative enactment rather than by judicial construction. For construed to include typhoid fever contracted in the course of employment, it may as well include influenza, pneumonia, tuberculosis, smallpox, ordinary colds, rheumatism and practically every disease which may be contracted in the course of employment, and the Workmen's Compensation Department will become a health and life insurance department."—*Industrial Commission v. Cass*, 136 N.E. 283.

New York to Study Industrial Diseases and Accidents

An intensive study of industrial diseases and accidents is to be undertaken by the New York State Department of Labor based upon data affecting 1,225,000 workers engaged

in the seventy thousand or more industrial plants in the state.

This proposed study was announced in an address by Dr. Leland E. Cofer, director of the division of public hygiene of the New York State Department of Labor at the Twelfth Annual Safety Congress of the National Safety Council at Buffalo, Oct. 1 to 5.

Dr. Cofer said that the department proposed to study conditions as they exist at the present time so that the results of any improvement may be properly appraised in the future. Every possible advantage will be taken to carry out educational activities for the purpose of teaching the worker how to work as well as how to look after his personal health and safety, he said:

"The industrial hygiene division of the state of New York examines annually approximately five hundred sets of plans of devices for the removal of obnoxious dust and fumes from workrooms," Dr. Cofer said. "It is proposed to analyze the results of this experience.

"It is also proposed to make a special attempt to enlist the interest of the medical profession in the state of New York in recording and reporting not only the specific industrial diseases, but other diseases which may be associated with industry.

"It is all-important that the proposed intensive study should be based on statistics as to the present status of industrial diseases in the state of New York and as stated, before appeal is made to the medical profession to give their aid, although it is appreciated that the answering of questionnaires on the part of busy practitioners in medicine is a downright hardship.

One of the most important points brought out by Dr. Cofer is the fact that in the endeavor to carry out this intensive study cooperation of the organized public health institutions, the medical profession at large, and the business and labor interests has been enlisted.

Twenty-two states now require the physical examination of every child applying for an employment certificate. Eight others and the District of Columbia allow the certificate-issuing officer to require an examination when he is in doubt as to the physical condition of the child. In eighteen states there is no legal provision for examination, when a child first enters employment.

SANITARY AND HYGIENIC ADVANCE

Dysmenorrhea in Industry

Sturgis finds that the great majority of women suffer no appreciable lowering of efficiency during the menstrual function. A study of 2,077 consecutive examinations of women employed in a large department store has shown that 65 per cent had no menstrual handicap; 30.6 per cent had only a slight handicap; and 4.4 per cent were seriously handicapped. The author believes that the attitude of the industrial hospital is most important and that by education and proper management of the hospital much can be done to overcome lowered efficiency. The disability of the few should not be charged against the great majority of women in industry whose lowered efficiency as a result of menstruation is negligible. (*J. Indust. Hyg., June 1923, v. 2, p. 53*).

Bacterial Analysis of Sugars

Papers by Kendall and Kendall and Yoshida (*J. Infect. Dis., May 1923, 32, 5*) in a series of articles by the senior author and his co-workers describe means of identifying and measuring small amounts of carbohydrates in mixtures, by bacteriological methods. One one thousandth of one per cent levulose can be detected by the change in pH produced by *Bact. coli*.

A standard series of microbes makes it possible to isolate or identify one or more sugars in an unknown mixture. The essentials for the detection of small quantities of sugars alone or in mixtures are, microbes of known fermenting powers, a set of carbohydrates of known purities, and standard phosphate solutions of known hydrogen-ion concentration.

Sterilizing Milking Machines

Bacterial count obtained in comparative tests made with milking machines sterilized in hot water, and others sterilized in a chlorinated lime solution, favor the heat method of sterilization according to L. H. Burgwald, author of "Cleaning Milking Machines" (*U. S. Dept. of Agriculture, Farmers Bul. No. 1315*). The average bacterial count of 74 samples

taken at 13 farms using various methods other than heat for the sterilization of milking machines was 257,900 per c.c. Two hundred sixty-one samples taken at the same farms when the heat method of sterilization was used had an average bacterial count of 19,300 per c.c.

"Samples of machine-drawn milk taken at a total of 20 farms using this method had an average bacterial count 13,750 c.c. for 622 samples, and 376 of the samples had a count of 10,000 per c.c. or less." The effect of heat on the rubber parts of the machines has not been fully determined but it appears to be but slightly if any more detrimental than other methods of sterilization.

A series of pictures shows the method of cleaning which consists in drawing through the machine by vacuum, clear water, water containing soap powder and at the same time brushing teat cups and tubing, clear water again; the long milk tube with claw and teat cups is placed in water which is then heated to 160-170 degrees F. The vacuum line should be cleaned every two weeks by drawing hot water containing washing powder through it. The moisture trap is cleaned thoroughly every day and twice each week the machine is taken entirely apart and washed with a brush.

Milk-Borne Epidemic of Septic Sore Throat in Portland

The epidemic in Portland, Ore., reported on by Benson and Sears, (*Journal A. M. A., June 2, 1923, lxxx, 22, p. 1608*), which included 487 cases of septic sore throat, with twenty-two deaths, occurred almost exclusively among the customers of a single raw-milk dairy. All but one of the patients who died had drunk this milk. Prompt detection of the cause of the epidemic and equally prompt control of the milk supply by heating were made possible by complete cooperation between the clinicians, the city health bureau and the dairy management, and resulted in checking further extension of the epidemic within twenty-four hours after the suspicion of a milk-borne epidemic was first brought to the attention of

the health bureau. Similar strains from hemolytic streptococcus were obtained in almost pure culture from the inflamed udder of a cow of the herd, from one milker's throat, and from the throats of numerous septic sore throat patients and contacts. All these strains were shown to be of the human type. It is probable that the milker in question infected the udder of the cow, producing purulent mastitis; that, on one or more occasions, this cow was milked in with the herd, and that the massed infection thus produced resulted in the epidemic. This cow's udder had both human and bovine strains of hemolytic streptococci. One quarter, containing a human strain, had a massive mastitis indistinguishable grossly from garget; another quarter, having a bovine strain, was only slightly consolidated.

Feeding Garbage to Hogs

The arrangement for garbage disposal in Sacramento, Calif., is as follows: The city collects and delivers garbage at the hog farm—an average haul of two miles; the contractor supplies the hogs which must not weigh less than eighty pounds at the time when delivered at the farm. The contractor runs the farm and when the hogs are sold pays the city the sale price for one-third of the net gain of the hogs in weight. Material not eaten by the hogs is buried.

It is estimated that the city will make a net profit of \$1,200 a year on the contract, and in addition it saves \$13,500, the expense of incineration in the past. (*Eng. News-Record, April 26, 1923, 90, 17, p. 742*).

Length of Working Week

The length of the working week of the average American employee has declined thirty-six minutes in the last two years, according to a statement issued by the National Bureau of Economic Research. Employers engaging finance, public and professional service require the longest hours, the average being slightly more than an eight-hour day for a seven-day week. Farmers and retail merchants each require over fifty-three hours a week of their employees, while the industrial group including building and construction, finance, public and professional service, printing establishments, and factories making textiles, clothing, and leather goods usually call for forty-eight hours a week from their employees. Longer hours are usually required by smaller firms.

New Method of Disinfecting Hides

Smyth and Pike in testing iodine as a disinfectant for anthrax-infected hides and skins, (*Am. J. Hyg.*, May 1923, iii, 3, p. 224) on a laboratory scale, found that either iodine vapor or a solution in water or carbon tetrachloride or carbon tetrachloride and gasoline, produced most satisfactory results in two hours. The former method consists in placing the hides in a chamber which by pressure and exhaust is filled with iodine vapor generated outside the chamber. The temperature within the chamber is maintained by steam coils thus preventing the deposition of the iodine. Vapors from the chamber are cooled and condensed in a baffled box which recovers much of the iodine. After the hides have been gassed they are given a short soak in thiosulphate, rinsed and placed in the lime vats.

The liquid disinfections are carried out in the ordinary tannery tumbler. A bath in thiosulphate follows. The iodine solution may be used over and over again; being brought up to strength (1 part skin to 9 parts of iodine) by adding iodine from time to time and the iodine removed from the skins by the thiosulphate is easily recovered.

Iodine is of course quite expensive. The liquid methods are in this respect more desirable and the carbon tetrachloride best of all. The expense of this latter chemical can be reduced by mixing with it some light hydrocarbon.

Tuberculin Test for Cattle

Experiences in obtaining and maintaining a tuberculin-free herd of cattle have been related by Dahlberg (*N. Y. Agri. Exp. Sta. Bulletin No. 496, Jan. 1923*). The original Bang method was followed in the station herd.

How accurate and reliable has this tuberculin test been in the Station herd? In the tuberculin herd maintained from 1901 to 1905, it was not especially accurate, as it gave a false report in 11 out of 64 tests. The tuberculin tests selected out all the tubercular cattle from the general herd in two years, namely, 1900 and 1901, which is a remarkably fine record. In 1904 and 1905, it showed two other cows to be tubercular and lesions were found in their bodies. In 1915 and 1919, two animals that reacted were probably not tubercular, while in 1922 the test on one cow contradicted itself. Since the healthy herd was established in October, 1901, it has been subjected to 816 tuberculin tests. The test showed six animals to be tubercular which were later proved tubercular. Since 1905,

the tuberculin test has shown three animals as tubercular which displayed no lesions of the disease. Three possible errors in 816 tests is as accurate as one could ever expect such a test to be.

The author summarizes as follows:

The tuberculin test has been invaluable in securing and maintaining a tubercular-free herd at this Station. The test has not been perfect, but it has been so accurate that by its use a tubercular herd was freed of the disease and a healthy herd maintained for 17 years without one demonstrated case of tuberculosis.

Biology of Sewage Purification

In reporting on the work of the sewage substation of the New Jersey Agricultural Experiment Station and the New Jersey State Department of Health, Rudolfs presents a table showing that practically no flagellates or ciliates are found at the surface of an Imhoff tank but the numbers increase with depth so that at 20 feet below the surface the former number 1200 and the latter 800 per c.c. In both influent and effluent the flagellates number about 75 per c.c. and the ciliates 20. The most abundant bacteria in the Imhoff tank are those that attack the most easily digested protein material, like bacteria, which attack soluble protein with the production of ammonia. A table dealing with this phase shows that there are more bacteria that are reducers of nitrogenous compounds than there are oxidizers of nitrogenous compounds.

Investigations of sprinkling filters shows that when there is a very heavy film on the stones that breaks up and passes through the filter, making purification unsatisfactory, considerable numbers of fungi are associated with the films. Nitration increased rapidly after the slough and when the film around the stones becomes thicker nitration decreases. (*Eng. News-Record*, May 3, 1923, 90, 18, p. 779).

Profit in Government Cafeteria

An article by Anice L. Whitney describes the health and welfare activities in the Government Printing Office. (*Month. Lab. Rev.*, May 1923, xvi, 5, p. 887).

The financing and management of the cafeteria are in the hands of a voluntary employees' association. The equipment of the lunch room and kitchen was purchased by the Printing Office. The kitchen is electrically equipped throughout. During the first year of operation the gross receipts amounted to about \$195,700. For the month of January, 1923, the

average receipts per meal were 19.8 cents and the average cost per meal 18.9 cents, leaving an average profit per meal of 0.9 cent. For February the profit was 0.7 cent per meal.

The hospital department has recently been extended from a single room to a suite of four rooms. The staff consists of two physicians and three nurses. All employees are given complete physical examinations upon entering the service. Since the inauguration of a detailed system of reporting, absenteeism in the plant has been greatly reduced.

Industrial Wastes in Relation to Water Supply

The injurious effects of industrial wastes on water supplies and water purification processes are becoming more and more important. The progress report of the Committee on Industrial Wastes in Relation to Water Supply (*J. Am. Water Works Assn.*, May 1923, x, 3, p. 415), prepared under the direction of Chairman Fales, is a valuable reference source for those interested in this problem. This report incorporates the more essential features of the preliminary report of 1922 together with more recent material. The valuable though incomplete information contained was derived from questionnaires sent to various public officials. The replies indicate that 248 water supplies, widely distributed throughout the United States and Canada, have been affected by industrial wastes.

The report considers among other things the pollution resulting from sugar refineries, coal mines, gas and by-product coke wastes, wood distillation wastes, corn product wastes, wastes from manufacture of dyes and intermediates, from the manufacture of munitions, leatherboard, and metal pickling and galvanizing plants. Wastes from oil wells and refineries, paper pulp mills, sawmills, tanneries, and textile mills add to the general list of offensive products.

Whether the solution of the problem shall be by (a) treatment of the polluted water, (b) treatment of industrial wastes prior to discharge, (c) or elimination of industrial wastes from the source of water supply depends on the local conditions. Due consideration must be had for established industries and unreasonable measures should not be used against them. "The problem must be considered from the broad viewpoint of public welfare."

NEWS FROM THE FIELD

Compulsory Labor Insurance in Japan

Japan is planning to establish a compulsory labor insurance system to provide relief for workers who suffer from injury or sickness. The plan being drafted by the Social Affairs Board will include all employees who receive twelve hundred yen or less per year and will allow 60 per cent of their wages during periods of disablement. Free medical attention will be an additional provision and, in case of death, funeral expenses will be paid. Three per cent of the costs will be deducted from the wages of the employee, and employers will pay the rest. Administrations costs of the fund will be borne by the treasury department.

Labor Census Being Taken in Japan

Japan has indicated her intention of taking every three years a census of labor. All factories employing thirty or more will be required to make a report to the government for the compilation of a report which will include the name and location of factories, kind of business, number of employees, working hours, holidays, and rest periods. Each employee is also required to fill out a card indicating name, age, sex, birthplace, education, wages received, allowance in kind, etc. It is expected that this census will assist the Government in enforcing the provisions of the factory law, which was recently amended.

Atmospheric Hazards in Railway Tunnels

Hot exhaust gases as the source of danger to locomotive crews exposed to atmospheres containing carbon monoxid or to atmospheres of high temperature and saturated with moisture are the subjects of Serial Report 2494 of the Bureau of Mines. On the basis of the tests made it is held that conditions in the caboose of locomotive engines might be severe enough to cause asphyxiation or exhaustion in periods of twenty minutes, especially in cases where the engine is stalled. Pocket respirator and other types of gas masks, packed with soda-lime charcoal mixtures af-

ford protection against smoky and sulphurous gases. Carbon monoxid masks afforded protection against all the gases encountered, but the most satisfactory method found for overcoming the tunnel atmospheres was by supplying air to members of the engine crew through respirators attached to the train air brake pipe line.

Czechoslovakia Drafts Bill Providing Old Age Pensions

The committee appointed by the Czechoslovak Parliament to draft the bill providing for an old age and invalid insurance has just completed its task, reports the Czechoslovak Consulate General in New York City. The proposed bill provides that the existing institutions for sick insurance will be amalgamated with the new state organization for old age and invalid insurance. Every manual and intellectual worker will automatically become a member of the new insurance corporation as long as he enjoys steady employment. In dispensing benefits the state will construe the word "invalid" as applying to an incapacitated person who is no longer able to earn two-thirds of a specified living wage. The report continues:

"The old-age pension will be granted to all insured citizens who have reached the age of 65. Widows will also receive their proverbial mite under the Insurance act on becoming invalided, or on attainment of the prescribed age, and orphans will be provided for under this bill until their seventeenth year. Every one participating in the insurance scheme—and there will automatically be 3,250,000 persons paying and receiving insurance money from the outset—will contribute an average premium amounting to 6 per cent of his total wages or salary. And each beneficiary will receive a fixed annual payment, the same in every instance, which will be augmented by a State supplement. The burden of the insurance payments will be borne equally by the employer and employee; each employer will be compelled to meet one-half of the laborer's insurance obligations."

Missouri's Trachoma Hospital, Rolla, Mo., was formally opened July 24. The institution was established and conducted under the joint auspices of the state board of health and the United States Public Health Service.

Women's Prison Association Makes Report

Women prisoners, states Mrs. Margaret B. Steinmetz, general secretary of the Women's Prison Association, are so few and far between that it is difficult to collect the necessary data in regard to prison conditions affecting them. On days she was making her tour of inspection at one time she found no woman in twenty-seven jails visited. In fifteen jails she was told that no woman prisoner had been received during the year.

The old-time type of alcoholic men and women do not go into the county jails now, she says, but are found in hospitals or asylums, or have had suspended sentences. In the increasing number of drug addicts there is a more criminal class of young men and women, she was told, and these drug addicts are a perplexing problem.

The woman cigarette smoker is found inside as well as outside the jail, and where they find it a great hardship to do without smoking, they are allowed to purchase cigarettes. A number of bright women were found at Auburn Prison serving long sentences, and one of these was taking a correspondence course at Columbia University.

Old-Age Pensions in America

Three states—Pennsylvania, Montana, and Nevada—have enacted old-age pension legislation this year. Each of these states allows persons seventy years of age or more and having no incomes, or incomes not exceeding three hundred dollars a year, pensions of twenty-five dollars a month, minus the amount of their incomes.

Legislation in this regard is based upon the results of inquiries in several states which reveal a surprisingly large number of aged persons dependent upon organized charity and upon the premise that the payment of pensions is economical and in every way preferable to the maintenance of poor houses and county relief. Wherever a study has been made, present provision either by industry, insurance funds, or public measures has been held inadequate.

The Federation for Child Study Summer Play Schools is making it a part of its educational program to train the children of the play schools not to throw litter anywhere in the parks except in the cans provided for them, and to work everywhere for a cleaner city.

Twelve-Hour Day Disappears in American Industry

The immediate effect of the abolition of the twelve hour day in the steel industry, which is just becoming effective in the United States is hailed by the press as a health measure primarily, cannot fail to be favorable to the workers. That it need not hurt industry is proved by the quantitative report on output in the porcelain ware industry just put out by Association of Porcelain and Allied Workers of Germany, and commented on by the *New York Times*.

Comparison was made between the output of a number of plants in 1914 under the ten-hour day and in 1922 under the eight-hour regime, and the relative increases in production for worker ranged from 12 to 119 per cent.

For instance, the average turner of salad dishes in 1914 completed 1,000 pieces in fifty-eight hours, while in 1922 he turned out 1,500 in forty-eight hours; plate makers increased their average output from 2,200 to 3,500, and cup turners completed 5,500 pieces a week in 1922, against 3,000 in 1914. About the same average increase in production held good in the painting division of the industry, as was also the case in the auxiliary establishments connected with porcelain factories. Even in plants where only high-class wares were manufactured the increase in out-put ranged from 12 to 32 per cent.

A writer in the Berlin *Vorwärts* explains that the porcelain ware makers are on piece work and have to do their utmost in order to earn enough to keep alive, and he warns them against speeding up to such a degree as to counteract the benefits obtained by the shorter work day.

Brochure on Biologic Products and Public Health

The *Commonhealth*, distributed free by the Board of Health of Massachusetts, has brought out a biologic number summarizing existing practical knowledge concerning the theory and application of biologic products with special emphasis upon those products manufactured and distributed gratuitously by the state. Useful commercial products are also described with reasons why they are not so made and distributed. The paper of Eugene M. Kelley, M.D., commissioner of health, and Benjamin White, Ph.D., director, Division of Laboratories, is particularly valuable as it appends a complete table of the diseases in which biologic products for diagnosis treatment, or prevention are available. The issue is a valuable reference book on the place of vaccines and vaccine therapy in state health.

Transaction of Cremation Society

The Transactions of the Cremation Society of England No. 34 presents the proceedings of the conference of the society in October, 1922. The questions discussed are the substitution of cremation for burial, the best means of spreading information on the subject, and the doctor's fee for the medical certificate. "The dead are very much more numerous than the living," to quote Dr. Chalmers Mitchell at this conference, "and every year they are getting more and more numerous, and the living cannot afford the present arrangements."

During 1922 the number of cremations which took place in Great Britain were 2,009, or 87 more than in 1921, but in the provinces there was a decrease.

Child Health Scholarship Fund

The American Child Health Association is advertising a ten thousand dollar fund to be devoted to resident and travel scholarships for physicians who want to improve their qualifications for child health work. Freedom of choice of institutions is allowed among those offering approved courses, the work to be undertaken during the school year 1923-1924 and the summer of 1924. Application is to be made to the American Child Health Association, 370 Seventh Avenue, New York City.

Program of Council of Jewish Women

The sub-committee on public health, of the Council of Jewish Women, headed by Dr. Luba Robin Goldsmith, offers material for health propaganda and exhibit material including lectures, the organization and direction of study circles, courses in first aid, and training as aides in health work. The practical work is obtained through health stations, and intelligent support in health campaigns for the prevention of disease is advocated.

Michigan Rural Health Campaign

A "health evangelist" is being sent out by the Michigan Tuberculosis Association to preach anywhere he can find an audience the gospel of health. He is furnished with a specially built automobile with a moving picture machine and stereopticon slides on health topics, a complete out-door living equipment and his special objective is preliminary organization for work in rural education along health lines.

Sickness Costs in Detroit

An investigation conducted by the social service department of the Detroit Department of Health into the average economic loss of patients served by the venereal clinic revealed a total loss of 24,152 days of work for one thousand patients, or \$183.83 per patient. The loss for the group studied, including wages lost, cash paid out for treatment, costs for future treatment, and continued unemployment made a total of \$168,590.

The average yearly attendance at the department of health clinic is approximately ten thousand new positive patients annually. The cost of physical unfitness due to venereal disease is estimated on this basis to be \$1,685,900 per year.

International Union Meets in Paris

The annual meeting of the International Union against Tuberculosis was held in Paris July 26, 1923, at the headquarters of the League of Red Cross Societies. Twenty members met under the presidency of Dr. Devez of Brussels.

Professor Léon Bernard, Secretary General, gave an account of the development of the Union since the Brussels conference. It was decided that the following questions should be placed on the agenda of the conference to be held at Lausanne in September, 1924:

(1) Relations between pregnancy and tuberculosis, to be reported on by Professor Forsner (Stockholm);

(2) Do there exist naturally or can there be produced artificially saprophytic forms of Koch's bacillus which might become virulent tuberculosis bacilli? Report by Professor Calmette (Paris);

(3) Effects of the organization of the anti-tuberculosis campaign in different countries on the decrease in tuberculosis mortality. Report by Sir Robert Philip (Edinburgh).

St. Louis Infant Mortality

The city of St. Louis complains to the *New York Times* that, on account of the fact that Missouri has not been admitted by the Government to the Registration Area, St. Louis has suffered some invidious comparison with other cities in the matter of infant mortality rates based on reports of the American Child Health Association. A report from Paul V. Bunn, General Secretary of the St. Louis Chamber of Commerce gives the death rate of 61.7 per 1,000 for 1921 and less than 57 for 1922.

Ten Million Pensioners from World War

The number of persons who are drawing pensions because of casualties in the World War from the several countries is reported by the International Labor Bureau to be around ten million. Distribution is as follows:

Germany has 1,537,000 pensioned men, Australia 76,000, Austria 164,000, Belgium 50,000, Canada 45,000, the United States 157,000, Finland 10,000, France 1,500,000, Great Britain, 1,170,000, Italy 800,000, Poland 320,000, Rumania 100,000, Yugoslavia 164,000, Russia 775,000, Czechoslovakia 236,000 and New Zealand 20,000.

Statistics are lacking for Turkey, Bulgaria, the Baltic States, Portugal, Hungary and Japan.

Child Labor in Japanese Factories

A survey of labor conditions in the cotton mills of Japan is reported in *The American Child* from which it appears that four-fifths of the workers employed in Japanese spinning mills are women and girls, and of these nearly two-thirds are under the age of twenty. Out of 177,476 women and girls employed in 1919, seventy-nine were under twelve years; 32,722 were between twelve and fifteen years; 79,656 between fifteen and twenty years; and 65,016 over twenty years. The number of men and boys employed was 55,330, almost all over fifteen years of age.

The factory act, which sets the minimum working age at fourteen, allows children of twelve to work when they have finished the course of an elementary school, or if they are in employment when the act comes in force. The new act stipulates that children under sixteen, and women are not to be employed more than eleven hours a day, which is one hour less than is allowed at present.

Baltimore to Compensate Aged Employees

Baltimore, Md., has under consideration an ordinance to create a department of compensation and pensions "to provide for the pensioning of certain aged or disabled employees of the city of Baltimore to provide medical attention and compensation for certain employees of the city injured in the course of their employment, and to provide compensation for the dependents of certain employees dying as a result of injuries

sustained in the course of their employment."

Smallpox Inimical to English Trade

Dr. Wanklyn of the London County Council Health Department is quoted by the *London Times* as saying that five hundred thousand cases of smallpox are not uncommonly reported from British India in a single year. Trade convergence in Great Britain renders Englishmen especially liable to infection. Last year upwards of nine hundred cases occurred in England and more than a thousand cases of smallpox have been noted in England the present year.

In the circumstances the present neglect of vaccination is little short of tragic, Dr. Wanklyn declares, as only about 38 per cent of babies born today are protected by that means. Present conditions carry warnings it is the utmost of foolhardiness to overlook, as increasing virulence as well as increasing incidence point to a far greater need for vaccination than has existed for some time past, and pressure in favor of this measure can well come from the business world.

Physical Examination of Children Entering Industry

In twenty-two states a physical examination is required of every child applying for an employment certificate and one state—Virginia—requires periodical examinations of working children to determine whether the work at which he is engaged is proving injurious to his health or interfering in any way with his development.

Eighteen states still have no legal provision for examinations of any kind, even when a child first enters employment.

The July *Statistical Bulletin* of the Metropolitan Life Insurance Company reports the following tendencies for the first half of 1923 in the mortality records of its policy holders: Tuberculosis mortality still declining; fewer deaths from cancer; lower rates from cancer; lower rates from cerebral hemorrhage; lower mortality among whites from organic heart disease; a general drop in death rate for puerperal diseases; comparatively low rate from pneumonia; lower diphtheria mortality; higher rates for measles and whooping cough. Fatal accidents are reported as more numerous in 1922 than in 1921, and mortality from alcoholism, paradoxically, is rising in the United States, and falling in Canada.

Test Music as Medicine in Hospital

As a result of a sixty day test, good music will now form a part of the treatment in the New York Nursery and Child's Hospital. In speaking of the results Dr. Harold C. Cox, the resident physician said:

"The test was tried mainly with the mothers in the maternity wards, but also with the babies and sick children. Whether it was the appeal of rhythm, we do not know, but the tests have amply demonstrated that music has a marked therapeutic effect on the spirits and general morals of hospital patients. Incidentally, the music is highly popular with the nurses."

Twenty-five extra health officers have been appointed in New York to cover the city in inspection of wagons, push carts, etc., used in selling candy, ice cream and various kinds of drinks on the streets. Investigation has shown that children form the greatest numbers of customers for these street vendors and that many of them are handled in a most insanitary manner. Especially in the selling of drinks, almost none of the wagons have any facilities for cleaning the glasses and in no case has it been found that the equipment was sufficient to make the glasses clean.

Parole System Being Tried Out for Lepers in Honolulu

A parole system has been in use at the Kalihi Hospital near Honolulu with a great measure of success. In all 242 lepers were paroled, thirty-one relapsed and ten were completely relieved from parole.

Those paroled, by carrying good reports of the treatment accorded them at the hospital have done much toward combating the prejudice, and by the mere fact of their release show that segregation may lead to a cure.

As a result of this system many who have been concealing this disease have come forward voluntarily and asked for treatment. About 70 per cent of those paroled had been segregated for less than two years.

Delegates to the International Congress of Surgeons held in London July 18, were told that the British rate in recent years has been reduced from 17 per thousand to less than 13 per thousand, and infant mortality from 133 per thousand to 77 per thousand.

HEALTH PUBLICATIONS REVIEWED

The Pre-School Child

The increasing emphasis upon the problems of the pre-school child both from public health and educational angles has opened up many possibilities. The present volume, "The Pre-School Child from the Standpoint of Public Hygiene and Education" by Arnold Gesell is an attempt to survey and interpret the problems of the pre-school child from the point of view of public hygiene and education. In this he includes material of great interest to those employed in related work, such as a summary of agencies dealing with the pre-school child, the nursery, the kindergarten, the handicapped child and other related subjects. In dealing with the problems of social control and the administrative organization of pre-school hygiene, he has stressed the significance of pre-parental education particularly.

Houghton Mifflin, Boston, 1923.

The Tuberculosis Worker

The author Philip P. Jacobs, in "The Tuberculosis Worker," has attempted to bring together knowledge of the experience and technique underlying the development of tuberculosis work during the last twenty years. He deals with two things; methods and programs of tuberculosis work. The book is based upon the activities of the many organizations dealing with the problems and is one which should be thoroughly studied by every health or welfare worker. The use of exhibits, the motion picture, the clinic, the nurse, the open air school and the many other methods are all carefully analyzed and evaluated.

Williams and Wilkins Company, Baltimore, 1923.

The Health of the Runabout Child

A popular but very sound discussion of the infant and child in "The Health of the Runabout Child," by William Palmer Lucas, offers food for thought to all interested in "the art of parenthood in this century of the child". As the author points out we now recognize certain children's rights: the right to be well-born; the right to the personal care of both

father and mother; the right to be fed, clothed and cared for physically; and "the right to learn from parents by example and precept the principles of truth, honor, purity and right living."

This fourth right, it is said, emphasizes the change in the historical attitude of parent and child. It is no longer a relationship of ownership but of trusteeship. "Not what a man and woman can get out of their children, but what they can put into their children, that is the test of parenthood." Dr. Lucas presents very readable material about normal growth and development, hygiene and health problems, common diseases, defects, foods, play, happiness, and habit formation in such a way as to be of wide general interest and use.

The Macmillan Company, New York, 1923.

Graded Outlines in Hygiene

The importance of adequate instruction and training of school children in the fundamentals of hygiene have been increasingly emphasized but unfortunately there is the greatest variation in the methods of presenting the subject matter and the actual content of the same. "Graded Outlines in Hygiene", by Walter Frank Cobb, develops certain dosages which can probably be administered by the average teacher without injury to herself or her pupils. The incidents, lessons, pictures and stories are all intimately related to the child's ordinary experiences; the organizing of material, the daily program, personal habits, physical education are all considered. Many valuable suggestions and anecdotes are related to demonstrate the methods of effectively presenting the subject.

World Book Co., New York, 1923.

The Black Candle

The author of "The Black Candle", Emily F. Murphy, as police magistrate and judge of the Juvenile Court at Edmonton, Alberta, has had the opportunity to observe the steadily increasing illicit traffic in narcotic drugs in Canada and the United States. She has studied the problems involved carefully and here presents a very thought provoking book. Statistical material in general is apt to

vary, but, the material gathered from official surveys and reports carries a weight of opinion not to be disregarded. Thus of 3,000 drug addicts treated at the New York State Clinic, 908 were between fifteen and nineteen years of age; 927, between twenty and twenty-five; 711, from twenty-six to thirty; 523, from thirty-one to forty; 133, from forty-one years or older. It was found that 429 attributed their addiction to illness; 351 to curiosity, pleasure or trouble and 2,482 from association with traffickers. A Canadian peddler boasted that he had been in the Dominion thirty years, during which time he taught two thousand people how to smoke opium. The drug habit is to be considered as a disease and provision should be made for its treatment under governmental protection. The police cannot alone control the situation. The author suggests a government monopoly of drugs, no profits chargeable.

George Allen and Company, Toronto, 1922

Moonlight Schools

Adult illiteracy and education is a problem considered more or less optimistically by many. We are appalled by its extent, but consistent reasonable measures to combat the situation have not been so widely developed as might be hoped. Moonlight Schools were first established September, 1911, in Rowan County, Kentucky, to combat the extensive illiteracy and to afford those of limited education, who so desired, to improve their knowledge. The movement has grown and spread as the problem has been defined and as resources have been available. The present book "Moonlight Schools", by Cora Wilson Stewart, is a very interesting narrative of some of their difficulties and accomplishments.

E. P. Dutton & Co., New York, 1922.

The Employees Compensation Commission

The Employees' Compensation Commission, its history, activities, and organization have been the subject of recent study by the Institute for Government Research, the report of which has been brought out as one of a series of service monographs (No.

12). The history and development of the service, its organization, the character, its activities, a compilation of the laws and regulations governing its operations, and a financial statement of its appropriations and expenditures are shown over a number of years. The monograph is complete in its bibliography and constitutes the most comprehensive statement of the subject that is available.

D. Appleton & Co., New York, 1922.

P. H. Nursing in Philippines

A pamphlet recently issued by the Philippine Health Service describes an important step taken in the establishment of a course in public health nursing arranged by the Service in cooperation with the University of the Philippines, the Philippine General Hospital, the Bureau of Public Welfare, the Red Cross and certain charitable and philanthropic organizations in Manila. The first six months course began August 1, 1922, with theoretical instruction in public health nursing, preventive medicine, vital statistics, sociology and charities and home economics. Practical field work was provided in connection with the Philippine Health Service, the Public Welfare Commission, the Philippine Chapter of the American Red Cross, the San Lazaro Hospital, the Department of School Inspection, the Anti-Tuberculosis Society and the milk stations with special visits and excursions to other points of sanitary interest. Thirty graduates completed this first course. Seventeen of them accepted positions with the Red Cross, eight with the Philippine Health Service, three with the Public Welfare Commission and two with the Anti-Tuberculosis Society. A second course opened May 15, 1923.

Increasing Virulence of Smallpox

During 1922, the case-fatality rate of smallpox, or the number of deaths per one hundred cases, was five times the figure for 1921! Among 9,936 cases reported in 276 cities in the United States and Canada, 495 deaths occurred, or 5 per cent of the total cases. In 1921, only 1 per cent of the 31,489 cases died. The decline in the number of cases may be only a casual circumstance; the lesson to be drawn from the records of the year is that smallpox in a virulent death-dealing form has entrenched itself in recent years among the American and Canadian populations. No one can now tell when, where, or to what

extent this killing form of the disease will next make its appearance. The wide acceptance of the false teachings of the anti-vaccinationists and the indifference of the American population to the continued and vehement warnings of its public health officials have prepared tinder for what may well become a catastrophe of the first order. At last, we can see very clearly where the two national sins of tolerance of scientific error and of drift are leading us, says the April issue of the *Statistical Bulletin* of the Metropolitan Life Insurance Company.

Interstate and intercity transportation afford ready means for the spread of virulent smallpox infection from the Western areas, where it has recently prevailed, to all other parts of the North American continent. In Kansas City, Mo., the type of the prevailing disease resulted in death in 46 per cent of the cases; in Kansas City, Kan., in 42 per cent; in Denver, Colo., in 31 per cent and in Moberly, Missouri, in 39 per cent of the cases. Chicago showed a case-fatality rate of 16 per cent; Tucson, Ariz., 20 per cent; Muskegon, Mich., 38 per cent, and Okmulgee, Okla., a rate of 85 per cent.

The Habit of Health: How to Gain and Keep It

This book "The Habit of Health" by Oliver Huckel seems to have grown out of a series of conferences at the Johns Hopkins Medical School some years ago having for their purpose the closer cooperation of physicians and ministers. The author led these discussions and is here publishing in a briefer form some of the suggestions there made, what he terms, "a broad-gauge plan for the unity of mind and body" which include spirituality, faith, recreation and work among other things.

Crowell Publishing Company, New York, 1922.

Loss of Life Not Due to Disease Alone

Disease is no longer the single important factor in the loss of human lives, says the Michigan Department of Health. In Michigan automobiles have been the chief offenders for the first six months of 1923, claiming 204 victims, exclusive of grade crossing accidents, as against 180 for the same period of 1922. Accidental drowning has likewise increased in Michigan for this year, the 1923 figure being 120, and the 1922 toll 104 for the same period.

Books Received

- ULTRAVIOLET RADIATION: Its Properties, Production, Measurement, and Applications.** By M. Luckiesh. Director of Applied Science, Nello Research Laboratories. pp. 258. D. Van Nostrand Co., New York.
- GRADED OUTLINES IN HYGIENE.** By Walter Frank Cobb, M.D., B.P.E. Director of the Department of Physical Education, Baltimore, Md., pp. 214. World Book Co., Yonkers-on-Hudson, N. Y., 1923.
- PRACTICAL DIETETICS.** pp. 636. By Alida Frances Fettes. Graduate Department of Household Arts, State Normal School, Framingham, Mass. A. F. Fettes, Pub., Mount Vernon, N. Y., 1923.
- ON THE VENEREAL DISEASES IN THE CZECHOSLOVAK REPUBLIC;** page 205, by Hynek Pelc, M.D. C. P. H., Prague, Czechoslovakia. The Printing, Publishing and Newspaperwriting Co., Ltd., Prague, 1923.
- MEDICAL CLIMATOLOGY OF ENGLAND AND WALES;** pp. 302, by Edgar Hawkins, M. A. Oxon, M.D. (Edin.), B.Sc. (Oxford) H. K. Lewis & Co., Ltd., London, 1923.
- CURES;** By James J. Walsh, M.D., pp. 291. D. Appleton & Co., N. Y., 1923.
- BODY AND SOUL;** pp. 42, by Percy Dearmer, M.A. E. F. Dutton & Co., New York, 1909.
- HEALTH TRAINING IN SCHOOLS;** pp. 405, By Theresa Danall, in Consultation with Charles O. Delfores, Crusade Executive, National Tuberculosis Association. Published by National Tuberculosis Association, 370 Seventh Ave., N. Y., 1923.
- THE MAKING OF AN EXECUTIVE;** pp. 457, By Hamilton Church, D. Appleton and Company, New York, 1923.
- RISK AND RISK-BEARING;** pp. 400, By Charles O. Delfores, Executive, Education, State University of Iowa. The University of Chicago Press, Chicago, 1923.
- THE PRACTICE OF ORGANIZED PLAY;** pp. 218, by Wilbur F. Bowen, M.S., and Elmer D. Mitchell, A.M. A. S. Barnes & Co., New York, 1923.
- THE THEORY OF ORGANIZED PLAY;** pp. 402, by Wilbur F. Bowen, M.S., and Elmer D. Mitchell, A.M. A. S. Barnes & Co., 1923, New York.
- NO NEED TO STAMMER;** pp. 75, by H. St. John Rumsey, M.A., with an introduction by J. F. Halls Dally, M.D. Dodd, Mead & Co., Inc., New York, 1923.
- THE DEESIDE. Regional Planning Scheme;** pp. 67, Report Prepared for the Joint Committee of Local Authorities, by J. L. Fyfe, Abercrombie, Sydney Kelly and Theodore Fyfe. Hodder & Stoughton, Ltd., London, 1923.
- HYGIENE OF THE VOICE;** pp. 212, by Irving Wilson Voorhes, M.S., M.D. The Macmillan Company, New York, 1923.
- THE UNCONSCIOUS;** An Introduction to Freudian Psychology, pp. 245, by L. Levine, M.A. The Macmillan Company, New York, 1923.
- ECONOMICS OF THE HOUSEHOLD: Its Administration and Finance,** pp. 253, by Benjamin R. Andrews. The Macmillan Co., New York, 1923.
- WALTER REED AND YELLOW FEVER;** pp. 355, by Howard A. Kelley, M.D. The Norman Remington Company, Publishers, Baltimore, 1923.
- DOMESTIC SANITATION AND HOUSE DRAINAGE;** pp. 227, by Henry C. Adams, N. Y. Branch Oxford University Press, N. Y., 1923.
- CIVILIZATION AND THE MICROBE;** pp. 231, by Arthur Isaac Kendall, Dean of Northwestern University Medical School, Houghton, Mifflin Co., N. Y., 1923.

Correction

In the "Health Publications Reviewed," section of the September issue of THE NATION'S HEALTH the address of the publisher of Krause's two books on Tuberculosis was given as New York City. This firm, William & Wilkins Company is located at Baltimore, Md.

The Pennsylvania Medical Journal and the Delaware State Medical Journal have combined to form a larger and better publication under the name of *The Atlantic Medical Journal*.

Public Health Development in Siam

(Continued from Page 677)

(2) Health administration. This includes infant welfare work and direct and cooperative health educational work with the Health Section of the Siamese Red Cross Society.

(3) Control of epidemic diseases.

(4) Public Health Inspection. This includes public health laboratory service.

(5) Inspection of medical services, including care of the insane.

Work of Municipalities

In addition to its direct health activities, the National Department of Public Health exercises advisory control over the health activities which, not being national in their scope, are conducted by municipalities such as the city of Bangkok and the smaller cities. The law¹ for the organization of these local boards of health defines their purposes as follows:

The purposes of these local boards are: The maintenance of cleanliness; prevention and treatment of disease; maintenance and construction of roads; record of births, deaths, and other vital statistics; the carrying out of vaccination; the development of means for the collection and disposal of refuse and filth; the protection of domestic water supplies.

Such local boards of health have now been organized in twenty-five interior towns. Seven of them maintain small hospitals, and fifteen maintain dispensaries.

The health work of the city of Bangkok is conducted under a separate budget through the office of a medical officer of health. The program of the office includes (1) hospital administration, (2) laboratory service, (3) maritime quarantine for the port of Bangkok, (4) infectious disease control, (5) sanitary inspection, (6) provision of public abattoirs, (7) medical service for the Bangkok prisons.

Red Cross Cooperates

Health work in Siam is being greatly aided by the Siamese Red Cross Society, which operates through the following sections:

(1) Hospital Section, which maintains the splendidly equipped Chulalongkorn Hospital.

(2) Scientific Section, which maintains the Pasteur Institute, one of the finest institutions of its kind to be found anywhere. It prepares all of the anti-smallpox vaccines used in

Siam, the material for anti-rabic treatment, and sera and vaccines of all kinds, as required.

(3) The Health Section, which in cooperation with the International Health Board, is conducting a vigorous work along the following lines: (a) Hookworm control campaigns; (b) Hookworm survey and health propaganda campaigns; (c) Public health education; (d) Anti-leprosy work; (e) Public health nursing (now being organized).

(4) Relief Section, a skeleton organization for emergency service.



Old method of disposing of night soil.

(5) Junior Red Cross (in process of organization).

Organized Health Work

It may be of interest to point out some of the important achievements of organized health work in Siam.

Health Education

The Department of Public Health has conducted a considerable amount of health educational work. The medical officers of health (Dr. R. W. Mendelson) has published a long series of health articles in the Bangkok newspapers and has posted all over the city of Bangkok large signboards calling attention to the means of preventing cholera, smallpox, and plague. The Ministry of Education gives a certain amount of instruction on hygiene in the schools and in the Boy Scout or-

ganization. The health section of the Siamese Red Cross Society has been a most effective agency in conducting educational work. In this it has been largely assisted by the International Health Board. The latter organization has also cooperated with the Department of Public Health in an effective series of hookworm campaigns, and its units, in making their surveys, have carried to every part of the Kingdom a strong health propaganda. Nothing has ever so stirred the public in the matter of sanitary reform as have these campaigns, and the beneficial results are already beginning to appear over a wide area.

Health education through exhibitions is being effectively employed. During the past year two large exhibitions organized cooperatively by the Siamese Red Cross Society and the Department of Public Health have been held. One of these, maintained in Bangkok for fifteen days during November and December, 1922, was attended by 220,746 persons.

Up to the present time, only two cities in Siam have been provided with municipal pure water supply, namely, Nakorn Patom, and Bangkok. The former has an artesian supply. The latter has one of the most modern types of purifying plant. By daily bacteriological examinations, a constant control over the efficiency of the treatment of the water is exercised. Cholera has largely disappeared from the sections of the city that are supplied from this source.

Epidemic Diseases

Due to the increasing mobility of the organized health forces and the improved means of transportation, the outbreaks of cholera which occasionally appear are dealt with more promptly, and do not now become so extensive as in former years.

Work against plague is carried on under the greatest difficulties. However, when an outbreak has become severe enough to persuade the officials to give the Department of Public Health a free hand, some very effective control work has been done. As an instance, the outbreak in the city of Korat (population 6,000) may be cited. For a number of years plague was endemic in that city, but in 1917 it took on an epidemic form, carrying away 10 per cent of the population before it was brought under con-

¹ Report of the Department of Public Health, 1922, p. 112.

trol. When the department was given full freedom of action, it conducted such prompt and efficient work that not only was the epidemic speedily controlled, but no cases of plague occurred in that city for the next four years.

During the past nine years a total of 3,418,444 persons have been vaccinated against smallpox. Of these 460,195 were vaccinated in the year ending March 31, 1922. This is a good record when one considers the difficulty of transporting and keeping active the vaccinal lymph in a tropical country. Formerly, it required several weeks travel to reach the distant provinces. Now, however, in emergency, vaccines² can be sent to such places by aeroplane. "For preserving the vaccine during transportation, thermos flasks have been tried but without brilliant results. The present routine method is to pack the tubes in wet sawdust in sections of bamboo. These are then frozen (-10° C.) and removed from the refrigerator immediately before shipment. In the actual presence of smallpox, the vaccine is shipped encased in blocks of ice when practicable."

Public Health Laboratories

The Pasteur Institute maintained by the Siamese Red Cross Society prepares not only antirabic treatments, but also all of the smallpox vaccine used in the Kingdom. In addition it prepares antivenene, curative sera of various kinds, plague vaccine, and so forth. It also is doing an increasing amount of public health laboratory work. The laboratory of the Local Sanitary Department (Bangkok) does the daily water analyses of the city water supply, examines rats for plague, and dogs for rabies, and does a large amount of other public health laboratory work. The government laboratory of the Ministry of Commerce, in addition to the routine analyses for the mint and the customs department, does medico-legal work and the preparation of such other supplies as the ethyl esters of chaulmoogra oil.

Hospitals and dispensaries have been established under various agencies in the important towns of the Kingdom. These are of varying degrees of efficiency, but they represent a distinct advance, especially when one remembers the limited number of well-trained physicians in Siam.

The Future

In conclusion, it may be pointed out

². Report of the Department of Public Health, 1922, p. 80.

that the conditions for health work are becoming increasingly favorable. The subject has been given a great deal of publicity during the past few years and this is having its effect. The newspapers are beginning to take up the cudgels, and in addition to the liberal amount of space given to health articles, letters from "Pro Bono Publico" and other serious-minded gentlemen frequently appear attacking notorious nuisances. The Siam Medical Association has been organized, comprising some three hundred of the physicians trained in Siam. This organization is beginning to agitate against certain existing evils. Siamese physicians have recently been sent abroad under various auspices to study public health and on their return their work along that line should be a great asset to the various health organizations.

If, under the adverse conditions of the past, the work outlined above has been possible, we may look for a much more satisfactory advance in the coming years.

Chemical Energy to Restore Fatigued Muscles

During the war we heard all sorts of wild rumors about the German soldiers being given some sort of chemical that endowed them with supernormal energy as they charged the enemy or endured forced marches. Doubtless various things were tried, including that old and unreliable stimulant, alcohol, and the newer and less exciting energizer, sugar.

But it has now been disclosed, says the current issue of *The Scientific Monthly*, that the most remarkable results in the endurance were obtained from the use of a well known salt, called by the chemist "sodium dihydrogen phosphate." This was given to the shock troops as they entered battle or during long marches in the form of a drink. To avoid the influence of psychological suggestion, which has invalidated so many tests with "poison squads" and experimental subjects, other battalions were served with a sham drink sweetened and flavored the same, but acidulated with tartaric instead of phosphoric acid. At the end of a hard, hot day the troops that had been treated with the phosphate were fresher in spirit and less fatigued in body than the others for some reason mysterious to them.

Since the war it has been found that giving phosphate drink to coal miners and farm laborers, increased their monthly output without extra exer-

tion. Horses and oxen given an ounce of the salt a day did more work and gained flesh. Here there could be no deception due to the imagination.

This practical and promising method of increasing human and animal efficiency came from the investigations of one of the foremost of German physiologists, Professor Gustaf Embden, of Frankfurt University, on the chemistry of nutrition. According to this theory muscular energy comes from the breaking down of a substance called "lactacidogen," which he regards as a compound of sugar and phosphoric acid. This breaks down, when the muscle contracts, into lactic acid and phosphoric acid. Lactic acid, as it has long been known, accumulates in a fatigued muscle and has to be recombined or oxidized before the muscle can work again. So Embden reasoned that adding phosphoric to the diet would hasten the combination of the phosphoric acid with more sugar and so relieve the fatigue. The war gave him the chance to experiment on whole regiments at a time and the results seem to confirm his theory.

The new stimulant has the advantage over alcohol or the alkaloids in that it is a natural factor in bodily process, and also in that there is no danger of intoxication from an overdose or of forming a habit. Doses up to a quarter of an ounce a day were given to the soldiers and laborers. More than this, and sometimes much less than this, has a laxative effect.

The report of these experiments is likely to multiply calls for phosphate drinks at the soda fountains, but the anticipated increase of muscular vigor may fail to be felt, for when the man behind the marble counter mixes a phosphate he throws in a dash of a very dilute solution of phosphoric acid, and a person would have to take some fifty such drinks to get the amount used by the soldiers.

Less than 5 per cent of lepers in the British Empire are being cared for in any way, according to a statement from a group of physicians who have organized themselves into the British Empire Leprosy Association, and only a small proportion of these are receiving the recently improved methods of treatment. The Association has as its objective the eradication of leprosy within the empire, an undertaking to be initiated by a general committee including leading physicians, authorities on tropical medicine, and public men.

United States Government and the Disabled

(Continued from page 679)

of the patient to be treated. With such care in its use the ultraviolet rays may be absorbed into the blood to improve the quality of the blood chemistry and the blood cells.

In another room of this unit are the latest type of static machines with various currents of extremely high voltage and infinitely small amperage. War hospital experience proved that these pulsatory static currents are of value in a surprisingly wide range of affections, being particularly useful in the treatment of injuries and diseases that are not due to germs.

The high quality of treatment for our invalid veterans depends alike on the physicians in charge who are specialists in physiotherapy as on the highly trained technicians who actually give the various applications, and who are officially known as "aides." These aides are, for the most part, graduates of the various women's colleges of the country and, in addition, they have been especially trained in physiotherapy so that they achieve the maximum results. In this clinic, alone, there was given 8,384 treatments during the month of January, 1921.

In another section of the dispensary is the dental clinic and it is no exaggeration to say that it is the finest example of its kind in the country. Its equipment includes twelve operating chairs, one chair for oral surgery, one chair for examinations, one x-ray chair and machine, and an up-to-date dental laboratory with two chairs for impressions. With a personnel including one chief of clinic, one assistant, twelve operators, two oral hygienists, one x-ray technician, four mechanical dentists, one nurse, six dental assistants and, in the laboratory, four disabled ex-

service men being trained in mechanical dentistry, there are treated, on an average, one hundred thirty-five men a day. Another section of the clinic of which the Veterans' Bureau is justly proud is that of the x-ray.

body: have these located immediately and actually visualized in situ. Radiographs are always taken and kept in file so that at any future time reference can be made to them for comparison or as otherwise needed.

Studies may be made of the chest, the actual movements of the heart, or the lungs during respiration. In examination of the stomach by means of an opaque substance the food can be seen passing from the esophagus to the stomach and any abnormalities or stigmata of disease can be visualized and then recorded on a film for permanent record. The developing is done immediately so that bone lesions, etc., can be demonstrated and reported in a few minutes, if necessary.

A separate dental exposure room is opened independently of the main exposure room which is an added asset to the busy dental clinic.

A fully outfitted workshop is an essential of the orthopedic clinic, and here are made all the artificial limbs, etc., needed for the crippled veterans throughout the entire district. Fitted with a full outfit of machinery for this purpose, these orthopedic demands are supplied by three departments—the mold room, the shoe room and an artificial limb repair and leather room. In the mold department a plaster cast mold of the disabled man's deformity is made, and from this mold all braces, shoes, etc., are constructed that are built in the clinic. All the shoemaking in this section is done by hand and is a very high type of work. Artificial limbs and braces of all types

are also made in the orthopedic section at a great saving to the government. It was estimated that the average cost of a pair of orthopedic shoes made in this section was twelve dol-



Diathermia (deep electrical heat penetration) followed by massage, exercises, and manipulations.

Here are to be found spacious rooms, well lighted, and adequately equipped with the very best and most proficient apparatus to be had.

Exposure rooms have every possible protection to patient and operator alike in the way of leaded walls,



General hydrotherapy. Application of Scotch douche concentrated on lower back.

insulated wires, etc.

The soldier carrying the maladies of Flanders' Field may come to the Clinic, say, with foreign bodies, shrapnel, etc., in any part of the

lars whereas, if they had to be purchased from some outside manufacturer their cost would average from three to four times as much. In this unit are four ex-service men, trainees of the Bureau, three of whom have each lost a limb. The fourth has charge of all the molding that is done.

One of the most interesting units of the dispensary is that of its scientific laboratory. Here all kinds of clinical, pathological, serological demands called for in dispensary treatment are satisfied. Presided over by an expert, experienced analytical chemist, the work of its high type personnel is evident in the extensive research studies and practical supplies constantly developed here.

Like the brook one could run on forever describing the various other features of this institution—for an institution this organization of 1,500 personnel has developed—but it is enough to say that they maintain the high standards of the ones already described. The general medical, surgical, eye, ear, nose and throat, and neuro-psychiatric units, under the control of high grade experienced physicians, surgeons and psychiatrists, in turn are all that could be desired to furnish the best of modern medical science for our deserving war invalids, and these men are earnest, hardworking practitioners who have sacrificed all thoughts of personal gain to attend to a duty that, in their view, is the most humanitarian that offers at the present time. Careful, thorough, painstaking individuals, they are all schooled in the knowledge that the care of a disabled veteran is of paramount importance, (and who will say it is not), and that the place that this veteran assumes in the life of the community after his cure has been affected is, in a great many ways, up to them.

To make clear the magnitude of the work that is being carried on in this dispensary, the records for January, 1923, show us that 18,613 treatments were given in this clinic and that 579 outside calls were made. Such figures speak eloquently for the value of this service in its particular field of activity.

Another end of the dispensary program that is entitled to a great deal of praise is the consulting service. Here is a service open to all patients

of the Veterans' Bureau, that has enlisted among its numbers the greatest names found in the medical profession in this country, and it is brought up to such a fine point that the average cost of such treatments or diagnosis that are given by these consultants, exclusive of outside calls, costs the



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government twenty-six cents a man. It was established that should the ex-service men who received this aid call, as private individuals, at the offices of the men who treated them in the dispensary, the cost of the same treatment that they received would be from fifty to one hundred times as much. It has also been estimated that the entire clinic operates at an annual saving to the government of \$388,000 compared to costs for similar service in contract hospitals.

It is a task for a pen far greater than the writer's to paint, in all its colors, the vivid and graphic picture of the New York City clinic of the United States Veterans' Bureau. It would require the descriptive faculties of a master to present the work that is being done; its magnitude, its quality, and its results. Therefore, it is with a silent prayer that this is given to the reader; a prayer that in some small way he may see a part of the machinery that is carrying on the greatest rehabilitation program that man ever devised.

Illinois Nurses' Institute

CULTURAL background and breadth of social viewpoint rather than training in technic are the objectives of the League of Nursing Education, but both were successfully incorporated in the program arranged for the Illinois Institute for Nurses held in Chicago September 3 to 14. Fifty nurses attended a series of thirty lectures on psychology, sociology, and the principles of teaching.

The lectures on psychology by Professor Harrison LeRoy Harley dealt with the fusion of personality factors that account for characteristic reactions in individuals, with nature and character of the various dispositions in man, and with modifications through socializing influences. The topics included a demonstration of the application of mental tests and an exposition of the principles of psychiatric nursing.

William E. Blatz, instructor in psychology, University of Chicago, supplemented this course by ten lectures on the principles of teaching and emphasized the educational functions of the public health nurse. Technical aspects of the subject were treated under such subjects as the learning process, habit formation, how to study, and the art of questioning. The subject was rounded out in its sociological bearings by Thomas D.

Elliot, of Northwestern University, who made of his ten lectures a sort of social survey course, indicating broadly the concrete social problems involved in case work.

During the period of the Institute demonstration clinics were held in the various hospitals of the city illustrating technic in such subjects as: (1) The unit system in the management of contagious diseases; (2) the treatment of diabetes; (3) visiting nurse work for crippled children; (4) infant clinics; (5) physiotherapy; and (6) the conduct of surgical clinics. The closing day was given over to a visit to the Illinois State School of Psychiatric Nursing and the last session, held in Amusement Hall, Chicago State Hospital, was a play staged by nurses from the Visiting Nurse Association of Chicago which in scenes and incidents represented faithfully a page from their day's work.

Insulin, the widely heralded treatment for diabetes, is to be used in hospitals caring for war veterans. The medical director of the U. S. Veteran's Bureau has issued directions that a competent man must be designated in each hospital to qualify for handling diabetes, and to keep in touch with current progress.

The Training of Health Workers

(Continued from page 681)

from the reorganization of the Department in 1914, is the establishment by the Public Health Council of educational qualifications for public health nurses and the greatly extended utilization of these invaluable workers in routine public health activities. In many instances municipal departments and private organizations have employed as public health nurses women who have had no special training in the prevention of diseases. In nearly all such cases the women have been graduates of hospital training schools, and consequently have been well trained in bedside nursing. Notwithstanding their lack of special training in public health duties, much valuable work has been accomplished by these nurses, although it has always been clear to the Public Health Council that their value to their communities would be greatly enhanced by instruction in public health nursing as that specialty is now understood. The Council has established educational standards for public health nurses several years ago, but owing to the shortage of nurses during the war it was necessary to suspend these requirements for the time being. By resolution of the Council on November 9, 1922, the educational requirements for public health nurses employed in any public capacity in New York State were reenacted and made effective from January 1, 1924 in the following terms:

(1) They shall be not less than 21 years of age at the time of their appointment.

(2) They shall be registered nurses.

(3) They shall have completed a course in public health nursing approved by the Public Health Council.

Provided, however, that upon application in writing by the appointing power or by the nurse, these qualifications may be waived by the Public Health Council.

Correspondence Course

In order to offer trained nurses additional facilities and inducements to meet the foregoing requirements, and to fit themselves for employment as public health nurses, the Department asked the University and Bellevue Hospital Medical College to inaugurate in the fall of 1922 an extramural course in public health nursing on a plan somewhat similar to that of the correspondence course for health officers. This new correspondence course calls for four hundred eighty

hours of home study with one week in residence in one of the large urban centers for the purpose of lectures, conferences, field, and laboratory work. It is believed that with such a course conveniently available, there can be no plea of lack of opportunity to meet the educational standards set by the Public Health Council, which now constitutes the minimum requirement for employment as a public health nurse by a municipality.

The response to the announcement of this course more than justified the anticipation that there would be a demand for such instruction. More than five hundred applications were received, though it was possible to receive only half that number in the first class. There is every indication that this course, like the correspondence course for health officers, will become a permanent institution, and will materially contribute to the improvement of the quality of public health work throughout the state.

Institutes for Nurses

Instruction for nurses was also offered by the Department in 1921 in the form of institutes covering two weeks of intensive study of a number of subjects. Such institutes were held in New York, Syracuse, and Albany, and were attended by considerable numbers of nurses. As in the case of the health officers, however, this method proved too expensive when considered in relation to the number of students benefiting from the institutes, and the experiment convinced the Department of the superior advantages of the correspondence course in reaching larger numbers of the nurses actually at work in the field.

Maternity and Infant Hygiene

In expanding this year the field work of the Department in the protection of maternity and infancy, the new division of maternity, infancy and child hygiene faced the need of instructors qualified to lecture to mothers' clubs and similar local groups on these subjects. It was found that the average nurse in the public health field has not had sufficient instruction in maternity hygiene or in the methods of teaching mothers, their previous training in this respect comprising usually an obstetric service in a hospital and often including no pre-

natal work. An extension course for nurses in maternity hygiene was accordingly organized in August 1922, a special instructor of nurses being engaged to give lectures and demonstrations in various localities throughout the State. The nurses from the surrounding territory come in to a town where the lecture or demonstration is given at four weeks intervals. This course is open to registered nurses or graduates of approved hospitals, and is given particularly for public health nurses.

Courses in Sanitation

This year for the first time the Department has conducted at Albany two special courses, one for sanitary inspectors, and one for the operators of water works and sewage disposal plants. This was done in the belief that a number of such workers would take advantage of the opportunity to obtain brief special instruction in the scientific fundamentals of their work. Given more or less as an experiment the courses have proved quite successful with an enrollment of twenty-seven men in each case. They will probably be repeated next year and perhaps at other centers.

Annual Meeting

Another means by which the Public Health Law of 1913 contemplated the promotion of the instruction of health officers and nurses was found in the established custom of holding an annual conference under the auspices of the State Department of Health. Such annual conferences continuing over several days have been held in various parts of the state but usually at Saratoga Springs. They have become recognized as preeminent among meetings of health workers in respect to attendance, distinction of the addresses delivered, and practical results in keeping local health officers abreast of the latest developments in sanitary science. The most effective contribution made by the Public Health Law of 1913 to the success of these annual conferences was a provision making it mandatory upon every local health officer to attend, and requiring the municipality which the health officer serves to pay his traveling expenses on this occasion from public funds.

Recently the Public Health Council has undertaken a special examina-

tion of the equality of the instruction now being given to under graduate medical students, from whose number must inevitably be recruited the health officers of the future. Every licensed physician in New York state, graduated since 1907, when the present law went into effect, has had in his undergraduate work a course of instruction in hygiene equivalent to four hours a week for fifteen weeks. The exact value of this instruction as a qualification for performing the duties of the health officer is not easy to determine. In the opinion of the Public Health Council there has unquestionably been a **steady improvement** both in the content and in the method of presentation of the subject of hygiene and sanitation in the medical schools of New York state, as doubtless elsewhere.

The inquiry initiated by the Public Health Council made it clear that the special postgraduate courses for health officers do not differ materially in subject or time from those given to undergraduates; in fact, it was surprising to find such a coincidence in the curricula of two sets of instruction provided by different authorities for somewhat differing purposes. What is clear, however, is that undergraduate students have by no means the background of general medical education and practical experience to profit by such instruction to the same degree as the practicing health officers who take the postgraduate courses. The point of view and approach of the two groups of men are quite different. Undergraduates are usually not particularly interested in preventive medicine, since the medical curriculum is framed from the viewpoint of pathological conditions, individual morbidity, and curative medicine. On the other hand, the practicing physician seeking further to qualify himself for his duties as health officer attacks the course and absorbs the instruction in the light of his hard practical experience.

As a result of its consideration of this subject the Public Health Council believes that the medical schools of New York state should be encouraged to give a larger place in undergraduate medical curricula to instruction in preventive medicine, while at the same time continuing the established lines of post graduate instruction for the particular benefit of those physicians who have had little, or no training in public health while studying medicine.

Wherever possible, the department

has cooperated in the undergraduate instruction in public health given in the medical schools of the state. This is particularly the case at Albany where various officials of the head-quarter staff of the department have given such instruction to the students of the Albany Medical School, while arrangements have been made for section work in the laboratories of the Department. This year, in addition, the experiment has been tried of having the senior medical students systematically visit and study in turn each of the main division offices of the Department in order to obtain some knowledge of its routine procedures. As a result it is believed that these young men will go out into practice holding more vivid and accurate notions of the utility of all the various requirements which a modern central health administration lays upon the busy mind and hands of every practitioner of medicine.

Mental Hygiene in England

The rational treatment of mental disease is the subject of an article appearing in the issue of the London *Daily Telegraph* for July 13, 1923. This article is an account of a meeting held the preceding day in Caxton Hall under the auspices of the National Council for Mental Hygiene. Sir Courtauld Thomson, chairman of the Council presided. Among the speakers were Viscount Burnham, Sir Maurice Craig,—the well known neurologist—and Mr. Clifford Beers, founder in America of the National Committee for Mental Hygiene.

The article continues, "Mr. Clifford Beers . . . gave a striking address from the point of view of one who had experienced a mental breakdown." Following his address, "Sir Maurice Craig paid tribute to the high moral courage of Mr. Beers in using his own experience for the benefit of others."

The July 14 issue of the *Telegraph* contained a long editorial dealing with the problems discussed in their news report cited above. It said in part, "These are times which make heavy demands upon mental and nervous energy. It is surely plain to all—for private experience and the distressing cases which too often force themselves into publicity offer proof enough—that in the interests of the national vitality we must use to the full the knowledge which modern sciences has brought. That means—to put the case simply that public opinion must be taught to regard

mental disorder as preventable and remediable disease. The practical corollary, the provision of wholesome conditions of life, and of adequate opportunity of treatment and cure, will then be secured."

The National Council for Mental Hygiene, the organization now striving to awaken such public opinion in England was founded May 4, 1922. It is a member of the International League, and though an integral part of this new world-wide movement, the precise activities of the National Council now established in Great Britain include among others the following objects:

(1) The improvement of the mental health of the community by close study of the habits and environment of the people with a view to eradicating those factors which lead to mental disease, and to educating the public in matters which militate for and against good mental health.

(2) To promote scientific investigation of the causes underlying congenital and acquired mental disease with a view to its prevention.

(3) To secure a more important position for the study of psychiatry in the medical curriculum; to further the provision of facilities for the early treatment of mental disease; raise the standards of care in public mental hospitals; remove legal formalities which prevent early care of the afflicted; and to combat the prevailing superstition and ignorance regarding mental disorders.

(4) To study criminality, dependency, vagrancy, and prostitution, in so far as they are failures of adjustment by reason of mental defect or disease.

(5) The mental hygiene of child life in relation to education and parental responsibility.

(6) The Council hopes to be the liaison between all organizations interested in mental hygiene and as far as it can with advantage cooperate with them.

The mental hygiene movement is expanding rapidly. Reports in the daily press of other countries, such as those cited above, indicates that one of the most neglected classes of the afflicted are no longer to receive the neglect and even abuse that was their lot in generations past.

The exhaustion factor in the causation of tuberculosis is discussed by F. C. Smith in *Public Health Reports*. Night schools, overtime, excessive amusements, over indulgence, asceticism, "speeding up," dancing, and even outdoor sports in excess have serious effects and produce an exhaustion and a state of lowered resistance which promotes tuberculosis in the predisposed. Child labor either in factory or home the author regards as an important consideration.

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The Fat Soluble Vitamin

(Continued from Page 688)

amounts of fat soluble vitamin in their food. The smaller allowance of fat-soluble vitamin has sufficed to support normal growth to adult size with apparent good health throughout the entire youth of the animals and often into early middle life, but in all cases has failed to support normal reproduction and successful suckling of the young. In the parallel group differing only in that they received a more liberal allowance of vitamin A, reproduction and lactation have been maintained and the numbers of young borne and successfully suckled have been fully normal. All of the twenty-two rats on diet low in vitamin A have now died, their average age at death being 369 days, corresponding to a little over thirty years of human life. Of the twenty-two which received the more liberal allowance of fat-soluble vitamin, seven are still living and the average age of all members of the group, living and dead, is already 701 days, corresponding to nearly sixty years in human experience.

These results make it plain that an allowance of fat-soluble vitamin sufficient to support growth at a normal rate and a good appearance throughout the growing age, was nevertheless below the optimum needed for full vigor. Particularly noteworthy among those on the diet low in vitamin A was the complete failure of successful reproduction in well-appearing young adults and the tendency of these to succumb to bronchial and lung troubles at an age about corresponding with that at which pulmonary tuberculosis so frequently develops in young men and women. The bacillus involved is different but the close parallelism in the susceptibility of lung tissue to infection at this stage of development appears very significant especially in view of the further observation noted above, that the vitamin A content of the lung tissue varies with that of the food.

In many respects we are doubtless only at the beginning of a full understanding of the relations of the fat-soluble vitamins to health and disease. But even our present knowledge makes it abundantly plain that a liberal supply of fat-soluble vitamin in the diet at all ages is an extremely important factor in the maintenance of a full measure of health and vigor.

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National Canners Association Passes Sanitary Regulations

The Board of Directors of The National Canners Association voted approval of the following rules and regulations governing factory sanitation at their meeting at Washington, May 24.

(1) All canneries shall be properly lighted and ventilated. When natural light and ventilation are insufficient, provision shall be made to supply sufficient light and ventilation, artificially.

(2) The walls and ceilings of workrooms shall be thoroughly cleaned and coated with light colored paint or other suitable material.

(3) Floors of wash rooms shall be kept clean. They shall be so constructed as to insure proper drainage and to prevent the accumulation of dirt.

(4) Gratings or slatted floors shall be provided in places where overflow or splashing is unavoidable.

(5) All washers, scalders, blanchers, and holding tanks shall be provided with a continuous water supply and an overflow, and shall be emptied and cleaned once each day, or as much oftener as is necessary to prevent souring or insanitary conditions.

(6) The supply of water and steam shall be ample to keep the factory in a sanitary condition. All water used on the premises for drinking, syrup or brine making, cleaning, washing or other purposes, must be safe and wholesome for the purpose for which it is to be used.

(7) Filling of cans with brine or syrup by submergence, or by means of a "dip tank" is prohibited.

(8) Necessary drainage shall be

provided to remove all sewage and other liquid waste in such a manner that it will not become a nuisance.

(9) The cannery and surroundings should be kept free from accumulated waste and rubbish. All peelings, skins, cores, etc., shall be removed daily.

(10) By-products, such as pea vines and corn husks, unless removed from the premises daily, shall be stacked or placed in silos separate from the building. The stacks or silos shall be properly drained.

(11) Canneries shall be operated in compliance with state, or federal sanitary laws, applying to such canneries.

(12) Fresh fruits, or vegetables shall be washed before being canned, except cabbage, from which all damaged or soiled leaves shall be removed, and corn and berries, which shall be washed when necessary to secure a

clean product. Decayed and damaged parts shall be trimmed from all fruits and vegetables.

(13) Boxes, tubs and tanks for holding raw materials, and boxes, crates and other containers furnished to the growers, shall be kept in a sanitary condition.

(14) Tables, floors, utensils, conveyors, and machines shall be cleaned after each day's operations, or as much oftener as is necessary to prevent souring or insanitary conditions.

(15) Pails, pans, or similar utensils used for the preparation of food for canning shall not be used for cleaning up purposes.

(16) The cans and covers shall be stored in such a manner as to prevent contamination and shall be clean when used. Empty cans shall not be kept uncovered in the canning room floor. The filled cans should be clean when shipped.

Child Health Association

THE American Child Health Association's first annual convention in Detroit, October 15 to 17 will draw together some of the most eminent child health authorities in the United States and from other nations as well.

Among the chief speakers will be Herbert Hoover, president of the Association, who will deliver the opening address; Dr. George E. Vincent, president of the Rockefeller Foundation; Mrs. William Brown Meloney, author and editor, and a director of the Association; Mayor Frank E. Doremus, of Detroit; Dr. Haven Emerson, professor of Public Health Administration of the College of Physicians and Surgeons, New York; Miss Maud Brown, a child health education specialist of nation-wide reputation; Dr. William J. French, director of the Fargo, N. D., child health demonstration; A. D. Jamieson, secretary and scout executive of the Detroit Council of the Boy Scouts of America, and Monsieur J. Maquet, Directeur-General de l'Oeuvre Nationale de l'Enfance, and Secrétaire de l'Oeuvre Nationale des Orphelins de la Guerre in Belgium.

Some of the topics for discussion and papers to be read will deal with community programs for child health, how the general public can bring about better co-ordination of community activities for child health, the workers in child health education and their duties, practical methods of teaching health to children, and the

newer phases of public health nursing, and the health of the child in relation to athletics and physical training will be discussed.

The convention, as the association's first, is expected to be the forerunner of others which will serve annually to bring together the child health experts of the country for the suggestion and solution of subjects which will raise child and material health in the United States to a higher plane. Since its organization in January, from a merger of the old American Child Hygiene Association and the Child Health Organization of America, the association has grown rapidly until now the membership numbers nearly five thousand and extends to many foreign lands.

The aims of the Association are to achieve this child health improvement through helping communities to increase their own health protection to a maximum, through teaching, literature, the founding of scholarships for doctors, teachers and nurses in health work, and by other means designed to increase the health knowledge of parents and children.

Herbert Hoover is president of the Association. Dr. L. Emmett Holt noted child health authority, is first vice president; Courtenay Dinwiddie is general executive, and Ella Phillips Crandall is associate general executive. Headquarters of the Association are at 532 Seventeenth Street, Washington, and executive offices 370 Seventh Avenue, New York City.

When peristaltic inactivity is the complication—

DURING protracted illness, the physician is often faced with the problem of inducing peristalsis without causing intestinal disturbance.

In such cases, fresh yeast is valuable not only for its laxative effect, but because it actually aids the processes of digestion and intestinal absorption. "It stimulates peristalsis and at the same time softens the fecal masses" is the conclusion of the investigators who recently completed an exhaustive series of tests on the effects of fresh Fleischmann's Yeast.

Not only does yeast assist regular intestinal activity, but

its vitamin content is highly beneficial, and experiments have shown that it induces a definite leucocytosis.

Best results are obtained by eating one cake half an hour before a meal or the last thing at night—followed by a glass of water. If desired, the yeast may be first dissolved in water, milk, or fruit juices.

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State Institution for Crippled Children

(Continued from Page 690)

it will not be very difficult to secure appropriations when our legislators know how little has been done along these various lines.

Character Formation

We must instill in these children the desire to work and support themselves, and training along these lines may possibly be of more consequence than mental education. It will accomplish nothing if we train a child and have him become proficient along certain lines if he has not the desire to use his talents. We aim to teach by example, having those in charge who will by association and attendance teach the child the good he should know. Religious societies have been a great help to us in many ways. Children are imitative, and are impressed by those with whom they have constant contact. The child must not only have education but must also be taught to use his ability in the right way. Recreation has a great advantage in educational lines. Outside influences are brought to bear, new things are seen and well remembered. We have great help from the outside through music-clubs, reading-clubs, theaters, and private individuals, and many an entertainment is long talked of, actors imitated, new mechanical toys invented, and many new feats performed by the little people of the state hospital on the incentives offered by recreational opportunities.

Traveling Clinics

A traveling clinic can do best work in an educational way and many suggestions can be given by the clinic. Parents in distant communities are taught that there is help for most physical deformities. The examination given the individual can be of great value to an established institution, deciding who can be benefited by treatment in that particular institution. The clinic can also cooperate with local physicians and visiting nurse associations, securing the best possible care of a given case. As far as real treatment in our experience is concerned in an orthopedic way, the traveling clinic is a failure among the indigent.

Social Service

Visiting nurses connected with an institution are most valuable. Home surroundings are noted; instruction is given to the parent or patient who

can but feel and know that the institution is still interested in their well being and future care; also by the aid of competent nurses the institution can earlier be relieved of the care of the individual, knowing that supervision can be carried on with some success at home.

The State Care of crippled children is a most laudable undertaking. New York, Massachusetts, Nebraska, and Iowa along with Minnesota maintain separate state institutions for the care of crippled and deformed children. Many other institutions in the United States, which depend upon private subscription, are doing valuable work in the education and treatment of crippled children. The recent Shrine movement of establishing hospitals throughout North America is a noble work and the benefit secured through these institutions will be most valuable. An institution caring for the indigent crippled and deformed children is the most constructive institution the state can maintain in caring for its dependents.

States that have no such institution can certainly profit by studying the institutions already established. We feel that the greatest good can best be obtained through an institution, that is, a hospital and school combined, where the child can receive instruction and training along with his medical and surgical care. The discharge from this institution should be only when the child is able to compete with and in the great part associate with normal children, or when the individual has become self-supporting through some trade or occupation taught in the institution. A hospital of this type may not be ideal for other states, but we feel sure that in Minnesota the greatest possible amount of money appropriated goes directly to the care of the crippled child. Orthopedic treatment we feel sure can most successfully be carried out in an institution. Education in the home or school not equipped for special training in a greater number of cases can be of little value.

Occupational Anthrax in Germany

INFORMATION concerning anthrax infection in industry and agriculture and on the disinfection of wool containing anthrax spores collected by the International Labor Organization, brought up to the year 1921 is summarized in the August issue of *The International Labour Review*. Anthrax among animals is defined by statute as an infectious disease in all cases, and its occurrence is made notifiable. Likewise among human beings sickness or death by septic anthrax, and all suspected cases, are made a matter of record and observation. Sanitary police regulations deal with the disposition of carcasses of infected animals, and infected stables are required to be disinfected with lime.

A Prussian order of 1902 deals with the danger of anthrax from skins, and provisions on accident prevention in 1910, carry rules to protect tannery workers against anthrax. An imperial order in 1909 prohibits the employment of young persons in factories where use is made of machinery for opening, dusting, or working up animal hides. Workers in brush and hair factories have been protect-

ed since January, 1899. No special measures apply to the wool industry, but power is given to undertake precautionary measures if necessary.

The total number of cases of anthrax among animals in Germany over the period 1912 to 1921 was 30,269. There were 1,575 cases of human anthrax reported over the period 1910 to 1921, the highest number occurring in 1910, and the highest percentage of deaths from this cause being recorded in 1917.

Classified by occupational groups, the incidence was as follows: Agriculture, 51.2 per cent; hides and skins, 36.9 per cent; hair, bristles and wool, 8 per cent; miscellaneous, 3.9 per cent. Cases were reported from ninety-two out of 125 tan yards. Only three cases were reported in the wool industry over a period of ten years.

The record shows that in Germany anthrax is becoming rarer in agricultural occupations. It has also decreased enormously in industrial occupations, this being attributed largely to the great decrease in importation of material from abroad.



Proper Mechanical Treatment for Weakened Metatarsal Arch

The two predominating symptoms of Weakened Metatarsal Arch are Metatarsalgia and Callouses on the sole over the Metatarsal region. This condition is easily recognized by the depression of the Transverse Arch anteriorly or at the base of the Metatarsal bones. The dome-like arching is obliterated and painful callosities or corns form over the depressed Metatarsal heads. The foot broadens, the toes become dorsal flexed. Bunions appear at the First and Fifth Metatarso-Phalangeal articulations. Digital nerves become impinged and severe cramp-like pains are experienced through the toes. This is known as Morton's Toe. These conditions, Doctor, are quickly relieved and the cause effectively corrected by the use of

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These appliances are especially designed and constructed to restore the Anterior Arch, remove abnormal pressure and permit full freedom of motion to the entire foot. There is a different type to meet each individual requirement.

Dr. Scholl's Corrective Foot Appliances are sold and fitted by leading shoe dealers in every community who have been instructed how to properly apply correctives to the foot and shoe.

Mail coupon for copy of valuable pamphlet, "Foot Weakness and Correction for the Physician," and chart of corrective foot exercises as recommended by Medical Department, U. S. A.

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The Welfare of Children

(Continued from page 698)

land as free pasture for the employees' cows. Every child must have milk and at 15 cents a quart, not many of our big families could give their children milk to drink three times a day or even once a day. Yet with free pasture, most of our families can and do, own a cow.

We believe that one of the greatest evils we have to contend with in cotton mill towns is snuff. If there is one subject we preach on morning, noon and

night, it is snuff. When we first came to Alabama, we had never seen any one use snuff—and being stopped on the street by a woman and asked to tell her something to do for a sore in her mouth. She opened her mouth to show us the sore, her lower lip was full of snuff—and seeing the black cake covering her gums and lip we thought of a gangrenous condition and offered to take her to see a doctor. She laughed, tried to spit the snuff out, and told us the sore was in the roof of her mouth. We have seen mothers put the snuff sticks in the baby's mouth to quiet him and little children come in and say, "Ma, I want a dip," and the mother hands her a box of snuff and the family brush or dipping stick, which is made from dogwood or sweet gum by chewing the end of the stick until it is soft and makes a sort of brush. We are thankful to say the snuff habit is going—very few of our young girls use it, and our mothers, many of them have quit, and most of them forbid their children to use it.

We have several organizations in our town that are doing a wonderful work toward keeping the children physically fit, and develop them into 100 per cent boy and girl that will take their place in the future, 100 per cent man and woman as God planned and meant them to be.

The following facts have been supplied by mountains, and though the sum-

plied by the author of the above conference paper showing the scope of other health and welfare activities of the company.

The mill village is most ideally situated for health. It is surrounded

house having a garden, or chicken run and cow pasture renting for three dollars per month.

The company does not require a health certificate when employing new hands, yet in the house to house

visiting of the nurse and doctors those having contagious or infectious diseases are soon spotted and are excluded from the mill.

All children under eighteen years of age wishing to work in the mill must present a school certi-



Lake and bath house in mill village.

mers are warm, yet we have an almost continual mountain breeze. The nights are cool and refreshing and a light blanket is always comfortable before morning. The village is amply shaded by beautiful old forest oaks, some of which could tell of happenings a century ago. The winters are mild and pleasant, the city being protected from the north wind by Lookout Mountain. We have lime, freestone, and iron drinking water. The very best of the drinking waters is piped directly to the yards of the cottages.

The operatives are supplied with very cosy convenient cottages, all or most of them of different design and contrasting colors. They are painted inside and out about every four years, no two in the same block alike. Each house has a veranda and most of them have large cool halls. The object of painting and decorating and using a different design in construction is to give the appearance of real homes rather than houses for "mill hands."

The Dwight Manufacturing Company owns all houses and property in the mill village, consisting of about five hundred houses available to employees, and others connected in some capacity with the Dwight Company, all renting for one dollar per room per month. The houses have from three to seven rooms; a three room

house showing applicant to have passed to the sixth grade in public school. He must go before the doctor for examination. He must be free from disease and up to normal in weight according to age and height. An applicant underweight is advised as to diet, sleep, etc.; he is warned against excessive use of tobacco, coffee, tea, and dope, and is sent home and told to report again in two weeks. They are usually very anxious to work and will obey health rules in order to gain the number of pounds required to enter them as a regular on the pay roll.

One very pale, undersized little fellow who was sent home to eat and grow, came back in two weeks with a five pound weight in each pocket and was very much hurt when asked to remove his coat without a chance of transferring the weights to his trousers pockets before getting on the scales.

The Dwight Manufacturing Company employs about eleven hundred people, about 40 per cent being women and girls, about 60 per cent being men and boys. About thirty boys and girls between fourteen and sixteen years are employed eight hours per day. The mill however runs ten hours.

Equipment for Community Work

We have a community house where the young folks, properly chaperoned, can have their parties and entertain-

Behavior of Stanolind Liquid Paraffin to Intestinal Toxins

DR. J. H. KELLOGG, in the New York Medical Journal, states that "One of the very interesting features of the many sided activities of liquid petrolatum (Liquid Paraffin) is its behavior toward intestinal toxins.

"These toxins are of bile acids, and alkaline wastes, excreted by the intestinal mucous membrane, and of a great variety of ptomaines and toxins produced through bactericide action in the colon and small intestine.

"In cases of incompetency of the ileocaecal valve, it (Liquid Paraffin) is a highly active solvent and readily dissolves these waste and poisonous substances, many of which are more soluble in liquid petrolatum (Liquid Paraffin) than in water. This oil, itself not absorbable, thus takes up a very considerable portion of these toxins and prevents their absorption."

Stanolind Liquid Paraffin (Heavy) being of unusually high viscosity passes slowly through the entire length of the alimentary canal and is sufficiently retarded in its action to permit a very complete absorption of these intestinal toxins.

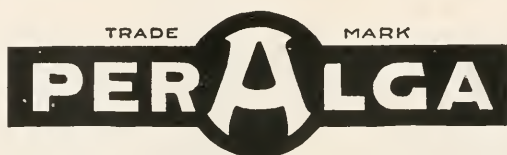
Stanolind Liquid Paraffin (Heavy) is a new medicinal petroleum product, having a viscosity of 300-310 Saybolt at 37.7 degrees C (100 degrees F); specific gravity—0.891—0.895 at 15 degrees C (59 degrees F), and is meeting the especial need of those physicians who, previous to its introduction, avoided mineral oils of domestic origin.

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ments. The house is equipped with a large kitchen where the girls or women can cook and serve dinners and where our girl scouts go for their cooking tests. The bath room has about five showers and dressing rooms. The reception hall is large

and airy and yet we find it inadequate for the large crowds that attend functions given there. We have provided and equipped tennis courts and basketball courts, and acres and acres of the great out-of-doors for all sorts of sports.

Handling Non-Resident Venereal Disease

IN a mid-western city of approximately two hundred fifty thousand population a movement was initiated to abolish the municipal venereal disease clinic and turn it over to the county. The matter was brought to the city council by a group of citizens who advocated this plan on the natural though non-altruistic plea that the clinic was doing too much for non-residents. One question which arose was "What arrangements are made in venereal disease clinics supported by a municipality, for transporting non-resident patients to their original homes?" The public welfare commission of the city sought advice from the American Social Hygiene Association on this point; since the Association did not have in its files specific information regarding practice in this matter, the question was referred to the health officers of a group of eight cities, six of similar population size in different states, one of similar population in the same state, and one the largest city in the same state.

Four cities gave direct replies to the question referred. Three of these stated that transportation was never provided. The fourth city described arrangements for transportation as follows:

After having taken these precautionary measures, (treatment and quarantine, if necessary,) we then attempt to communicate with the relatives, or if necessary with the authorities where these patients are residents. In many of these cases the relatives or authorities have instructed us to send them back to their homes and they have remitted to us expenses incurred in such transportation. In a few instances, we have been compelled to call upon the Associated Charities to provide such transportation. As far as we are concerned, this question has never been raised by any of our tax-payers and I doubt whether any serious objection will ever be raised, because we are keeping in the foreground our main argument, viz., we must protect our own people against infection.

Five of the health officers commented upon the general question as to the handling and treatment of non-

residents as follows:

In regard to non-resident patients being treated at our clinic I may say that we treat all patients who apply to us, whether residents or non-residents.

Inasmuch as this clinic is a co-operative affair between the city and state health departments and the U. S. Public Health Service, very little attention is given to the place of residence of those receiving treatment. Nearly all patients donate a reasonable amount for the treatment given.

Our policy here has been the same as with other communicable disease cases, viz., first, we must protect our own people, therefore, we give free treatment if necessary, to non-residents, or if we believe that they will continue to violate our ordinances by exposing others to the disease, we place them under quarantine.

If a non-resident presents himself to any of our clinics we treat him. Why should we discriminate against any city. We have even stretched our rules so that if anyone from a nearby town who cannot afford to pay for treatment applies for treatment we will treat the patient believing that we are thereby protecting our own citizens, as well as the citizens of the town wherein the patient is resident. If a municipality is so narrow that it won't treat a patient with an infection who can't get treatment elsewhere, it ought to establish a few churches for the teaching of the message of the Master and it ought to lock up its reservoir and not give a thirsty man a drink.

The other health officer states that after all non-resident cases do not constitute a large proportion of the cases handled by the clinic even when they are admitted to treatments without question. The importance of this comment is increased by the fact that this city is the largest one of the group, having a population of about eight hundred thousand. His statement is as follows:

So long as a case is a danger to public health, namely, in the infectious stages of these diseases, we consider him eligible for free treatment if unable to pay for same. In spite of the claims that large numbers of cases come from outlying districts to secure the benefits of treatment in the clinics here our own experience does not confirm this. . . . As we are subsidized by the state par-

tially through the free distribution of arsphenamine, this would more than offset, probably, the responsibility of caring for the non-resident patients.

In contrast with these comments from five cities as to the importance and practicability of treating non-resident cases we have the following comments from the health officers of two other cities of the group surveyed.

In our municipally controlled venereal disease clinics, non-residents are not received except in an emergency. We have had to be extremely strict in order to prevent surrounding communities filling our City Hospital and clinic with non-residents, not only venereal cases, but also those of scarlet fever, diphtheria, etc. We certainly cannot afford to maintain a hospital for other communities which are just as well able to pay for hospital service as we are

In dealing with non-residents who present themselves for treatment at our clinics, would say that the rules of the hospital are very rigidly enforced and we do not receive any clinic patients who reside outside of the limits of the city. All cases applying for clinic treatment are investigated by the social service bureau of the hospital, their residence in the city checked up, etc. We have had considerable difficulty in the past in handling this phase of the hospital admissions but at the present time things are running very smoothly and I believe that the residents of the surrounding cities and towns have arrived at a proper understanding of our attitude in the matter and it is only occasionally that a non-resident will apply for admission for clinic treatment, when of course, as stated, above, he is refused. This applies not only to the type of case mentioned in your letter but to all cases.

Only one health officer commented upon the objection of tax payers to paying for the treatment of persons careless enough to become infected with one of the social diseases. He stated his comment as follows:

It seems to me that the argument, from the public health standpoint, that free treatment should not be given to those careless enough to become infected with a social disease, is absurd. Were it valid, it would be as well to dispense with all Venereal Disease Clinics.

Child Labor on the Increase

Grace Abbott, chief of the United States Children's Bureau, stated before a sectional meeting of the Home Economics Association in Chicago, August 1, that child labor in the United States is increasing. One million children between the ages of ten and 16 years were employed in January, 1920, she said. A decrease was registered in 1921, but reports from twenty cities indicate marked increases for 1922, some as high as 100 per cent, a general increase of 57 per cent being shown.

The Railway Accident Problem

(Continued from page 692)

new employees along safety lines and also the necessity of having a foreman or a supervisory official who recognizes the importance of safety as it should be applied in the course of railroad operation.

Analysis as to the causes of accidents to employees brings out more and more the importance of giving careful consideration to contributory factors with the thought of applying such remedies as will eliminate the causes. When accidents resulting in personal injury or death are not accepted as inevitable in the usual daily events and when those in charge of supervision understand that they are expected so to educate their forces and direct their work in such a manner that accidents do not occur, the result will be practically an elimination of all accidents which have been classed as inevitable.

The railroad accident problem not only involves the railroads and their large army of employees but it involves the public as well. Not only are the railroads interested in a reduction of accidents in which they are involved but the public, including the large body of railroad employees are also vitally concerned and to this extent the entire plan involves society. So we may assume that the general scope as it applies to accident prevention has the approbation of the American public and that passively, at least they are lending their support to this movement.

The fact that in the United States during the year 1920 there were seventy-six thousand people killed and approximately two million injured through accidents should be sufficient to cause the American people to halt and take an accounting of steps necessary to curb this enormous life wastage.

The enormity of the number of people being killed and injured daily in this country through accidents is brought out by comparisons with the number of our United States soldiers, sailors, and marines killed and wounded during the nineteen months in which we were involved in the World War. During this period there was an average of three thousand killed and about six thousand wounded per month. Whereas in America during the second year following the close of the war peaceful pursuits resulted in approximately sixty-three

hundred people killed and one hundred, sixty-five thousand injured each month. Putting it another way, more than twice as many people were killed per month during peace times and more than twenty-five times as many injured as soldiers killed and wounded during the same period of time during the World War.

The call for cooperation of the American public to the end that human life and limb will be conserved for the use for which it was intended should meet a hearty response for the results obtained affect society as a whole. While casualties to railroad employees concern the public to a certain extent, yet the public is more vitally concerned in the elimination of that class of accidents with which they are in daily contact. Surely it is a matter of vital concern that there are approximately eighteen hundred people killed and five thousand injured in the United States each year as a result of highway crossing accidents. During the five year period ending with 1921 the number of casualties resulting from highway crossing accidents with automobiles as compared with the total number of all classes of highway crossing accidents have increased from 50 per cent to 80 per cent. The one element which has been the principal factor in this increase is the large increase in the use of automobiles. During the same period the number of licensed cars was increased about 125 per cent. It is a well known fact that grade crossing elimination is a real remedy for the prevention of this class of accidents, but it is also well recognized by all right thinking people that it is a physical and financial impossibility to eliminate these crossings within the next several generations, and, therefore, we must accept the situation as it exists and try to apply a remedy that will meet this situation.

This is a field that has wonderful possibilities. It is a field in which success cannot be hoped for unless there is full cooperation between the railroads and the public. The railroads are endeavoring insofar as is possible to keep the physical condition of the crossings in such shape that accidents from this cause can be minimized.

The railroads appreciate that they have a duty to perform and I feel

justified in saying that they are as a general rule endeavoring to carry out a plan which will serve to reduce grade crossing accidents. They are making special efforts to eliminate such obstructions to view as are within their province to do so. They are trying to educate those to whom is entrusted the responsibility of protecting the crossings so that they will render the service expected of them; they are making special efforts to have the enginemen give proper warning signals upon approaching these crossings; in fact they are going upon the assumption that not only do they have a duty to perform but that they must go to the public with clean hands and in good faith ask for their full cooperation.

Since we will have approximately thirteen million licensed automobiles in use in the United States during 1923, it behooves all concerned to concentrate their efforts and energies to the end that the great sacrifice will not continue. The best results possible are to be obtained only from special appeal to the users of the highway.

The motorist should be aroused to his full duties in the premises, his conscience should be awakened to the enormous life wastage resulting from automobile accidents. We must appeal to his better manhood to join with us in our effort to stamp out the demon carelessness. He should know that fatalities resulting from automobile accidents are increasing in this country at the alarming rate of more than twelve hundred per year and that in 1922 there were approximately thirty-five deaths per day from this cause and that of the total number of railroad grade crossing accidents 80 per cent are with the automobile.

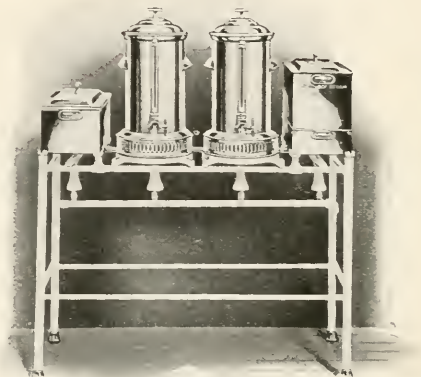
These facts ought to be sufficient to point to the motorist where the principal trouble lies and should be sufficient proof to justify the statement that most of these accidents can be eliminated if the driver will at all times exercise his faculties and use good judgment in approaching and passing over these crossings.

During the five years ending December, 1921, there was an average of three hundred passengers killed and seven thousand passengers injured each year and considering that the railroads of this country carry ap-

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YOUR first aid room or clinic needs more than a single sterilizer. An emergency may come any day that will demand quick facilities for hot or cold sterile water, as well as a dressing and instrument sterilizer. Supply your staff with a Castle combination to give the maximum utility.

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ETHICAL
PRODUCTS

CRESATIN

takes the place
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More Germicidal!
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it stands alone

proximately 962,000,000 passengers per year which is more than nine times the entire population of the United States it will be observed that the percentage of casualties from this cause is relatively low. The point desired to be emphasized in this connection is that in the handling of passengers the railroads are more in a position to assume a substantial portion of the duties requisite to the care of those about their property or riding upon their trains, this duty being to a large extent one on the part of the railroads (although the passengers are required to exercise proper care and caution for their own safety). This enables the carriers more completely to carry out the safety plan and in consideration of the large number of passengers handled, this record is one of which the railroads have just reason to be proud.

Mutual Responsibilities

The mere fact that there is more of a divided responsibility between the railroads and the users of the highway serves to increase rather than decrease the number of railroad grade crossing accidents. The users of the highway fail to appreciate that they have an obligation resting upon them to know that the way is clear before attempting to cross the tracks and failure to exercise their faculties to this extent results a great many times in a serious misfortune.

The basic foundation upon which our government was established is that safety shall be enjoyed in the pursuit of freedom and liberty. In a small measure the things we hope to accomplish as a result of the blending of our efforts with the support of the people who are most vitally concerned will serve to further the principles which have descended to us as a priceless social heritage. Such measures will intensify the spirit of safety and result in fewer deaths and injuries from all causes and to this extent we will aid in the retention of the freedom which is a part of our life.

It is, therefore, important that we enter into this fight not with an over-confident feeling but with sufficient confidence in the justice of our cause that we will have no thought of defeat. We should concentrate our efforts and move forward with a full determination to win. If we do this our efforts will be rewarded with success and we will not have labored in vain. This field to which we dedicate ourselves is one that is noble and one that will appeal to the innermost conscience of our countrymen. Our reward will be in the knowledge that

we have been instrumental in conserving life and limb.

Through a unity of purpose and the concentration of our energies together with the cooperation of those most vitally concerned we can have the assurance that we have had a part in a great plan which has rendered an invaluable and lasting service to mankind.

Nursing and Nursing Education in the United States

The report of the Committee on Nursing Education appointed by the Rockefeller Foundation was published in *THE NATION'S HEALTH* (July, 1922, Vol. 4, p. 408) and has been extensively discussed in these columns and elsewhere, during the past year. The volume here reviewed includes the results of the exhaustive study by Miss Josephine Goldmark, upon which the recommendations of the committee were based. This study deals with the numbers and types of workers needed for the care of the sick and for the tasks of health education, and presents actual field studies of the daily work of the public health nurse which clearly indicate the need for a broad and fundamental nursing, training to prepare for the teaching of health in the home. Miss Goldmark then passes to the actual status of nursing education and the studies made by her staff of observers as to existing conditions in hospital training schools will prove illuminating in the extreme to all not already familiar with the uneven and unsatisfactory nature of such education. The remedy of course is an adequate endowment of nursing education and the case, presented by Miss Goldmark and set forth by the committee to which she reported, is so convincing that it has already led to the establishment of a university school of nursing supported by the Rockefeller Foundation at Yale and to the consummation of plans for an endowed university school in Cleveland. It is to be hoped that this message will receive prayerful consideration in all the large cities of the country. We should have not one, or two, but a dozen, well endowed institutions of this kind in different parts of the country if the need for leaders in nursing and nursing education is to be met.

The Macmillan Company, New York, 1923.

The National Association of Colored Graduate Nurses met in sixteenth annual convention in Chicago in August with an attendance of 122 delegates.

New Jersey Regulation of Food and Beverage Stands

The department of state police, charged in New Jersey with the inspection of roadside stands from which food is served, have reported gross violations of the state sanitary code, chiefly, due to ignorance of the required conditions on the part of the stand operators. The New Jersey regulations for the conduct of booths, stands, and stores where foods and beverages are served are as follows:

(1) No food in a state of putrefaction or decomposition shall be served.

(2) No chemical preservative shall be used in milk or meats.

(3) No false or misleading statements shall be made upon labels of containers of food or beverages. No false or misleading statements shall be made upon signs or posters nor upon the booths regarding the foods or beverages served.

(4) Glasses, dishes, knives, forks, spoons, cooking utensils, and receptacles, in which foods or beverages are stored or served shall be washed thoroughly with soap or washing powder and water and then rinsed in clean water after use.

(5) Foods which are not packed in tight containers shall be protected from contamination by dust, dirt and flies.

(6) If perishable foods, such as milk and meats, are served, ice boxes ample in size shall be provided. Ice boxes shall be kept in a clean condition.

(7) All waste liquids shall be conducted from the booths or stand and disposed of in such a manner that a nuisance will not be created and in such a manner that a water supply is not polluted.

(8) All garbage shall be removed from the premises daily and disposed of so that a nuisance is not created.

(9) Clothing worn by persons engaged in preparing or serving foods shall be clean.

(10) Water shall be procured from some source which is not polluted.

(11) If privy vaults are maintained, they shall be constructed so that flies cannot gain access to the excremental matter. If privy vaults are maintained within one hundred feet of any spring, stream or well, the vaults shall be constructed so that they are water-tight.

(12) Human excrement shall not be allowed to remain upon the surface of the ground and shall not be buried within one hundred feet of springs, streams or wells.

Minnesota has provided for the establishment of a psychopathic department of the Minnesota General Hospital and has appropriated money for its construction, equipment, and support.

Senate Bill 22 of Ohio, effective July 29, makes the state narcotic laws conform to the Federal statutes.

Anthrax and Tetanus Are Seldom Found in Range Sheep

Armour's Sterile Catgut Ligatures are made from the intestines of range lambs. Regardless of that, as much care is taken at every step of processing as could be taken with "casings" gathered here and there, by manufacturers whose only facilities are the open market. We, being the source of supply, select the material that goes into surgical strings and, knowing its destiny, take every precaution to insure great strength and sterility.

We offer non-boilable sterile catgut ligatures 000, 00, 0, 1, 2, 3 and 4 plain, and the same in 10, 20 and 30 day chromic. These ligatures are very flexible. Also the same sizes and kinds in the boilable grade and iodized catgut ligatures, 000, 00, 0, 1, 2, 3 and 4.

Pituitary Liquid

The premier product of the Posterior Pituitary, $\frac{1}{2}$ c.c. ampoules (obstetrical), 1 c.c. ampoules (surgical), boxes of 6; also boxes of 50 for hospitals.

Elixir of Enzymes, digestant and vehicle. Benzoinated Lard U.S.P., Pepsin, Pancreatin, Thyroids, Suprenalins, Corpus Luteum. Ovarian Substance and other endocrines in powder and tablets.

Suprenalin Solution 1:1000

Astringent and hemostatic. The one perfect preparation of Suprenalin active principle. 1 oz. g.s. bottles with cup stopper. Suprenalin Ointment 1:1000.



*Booklet on the Endocrines
for Physicians and Pharmacists.*

ARMOUR AND COMPANY
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A Monograph on THE BACILLUS ACIDOPHILUS Topics

- I. Nature of activities of *B. acidophilus*. Ancient use of aciduric bacteria. First therapeutic use of *B. acidophilus*.
- II. Alteration of intestinal flora. Suppression of putrefactive organisms. Food control of flora. Obstacles to control of flora by diet.
- III. Dominant types of *B. acidophilus*. Basis of selection of strains for implantation. Cultivation and conveyance of implanting strains.
- IV. Bacteriology.
- V. Therapeutic Applications.

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The Arlington Chemical Company
Yonkers, New York

MOTHERS!

this will
interest you

WHEN Pasteur made his great discovery which brought about the Pasteurizing of milk, it was a tremendous scientific step toward greater purity. When Heath made his remarkable discovery of Heathizing Ice-Cream, food scientists acclaimed it as an equally momentous achievement.

HEATHIZATION is the newly discovered method of making ice-cream in an atmosphere of purity and cleanliness. In making Heathized ice-cream, the ordinary air is driven out of the freezers and replaced with a clean, pure and sterile atmosphere. The result is a more delicious tasting and better flavored ice-cream. The texture of the ice-cream made this way is richer, more creamy, more appetizing.

UT, above all, Heathization is a sanitary precaution. It protects the purity of ice-cream. There is a manufacturer of Heathized Ice-Cream in your city, so look for this "Sign of Purity" when buying ice-cream. If your dealer hasn't it, ask him to get it for you, or write us for further information.

Heathized Products Co.
400 N. Michigan Ave., Chicago, Illinois



Three New Services of Life Insurance

(Continued from Page 696)

interests. Here we have a direct business proposition, tying up annual medical examinations and public health with life insurance. Here we have the public health of the future on a sound economic foundation.

The Call to Service

The human race needs and now is calling for a longer and stronger life. Public health and medicine can take care of the physical technical problems involved; but only life insurance companies can furnish the sound financial business foundation for this physical regeneration of man. This call on life insurance companies is a call to solve today's greatest physical problem, a huge problem, which only the financial knowledge and organization and the knowledge of the actual facts of life, death and disease possessed by life insurance companies can solve.

Even an attempt at its solution means publicity and education of the best on these lines; but a successful solution means the greatest advance for mankind ever yet achieved by man.

1. Fiske gives the annual cost of sickness per head of the population as thirty dollars, which is one hundred and fifty dollars per average family or about \$270,000,000 to \$300,000,000 annually in Canada. This item yields some very interesting consequences. Contrary to the general belief, "doctors' bills" form a very small item in cost of sickness. The total of the physician's share of the bill averages, on pre-war figures, only one dollar per head, five dollars per family, or \$9,000,000 for all Canada. If we treble this amount for advanced rates since the war, still the physician receives only 10 per cent of the total cost of sickness, or \$27,000,000 out of a total cost of two hundred seventy million dollars. Periodic examinations of everybody at only five dollars per head (which is but one-sixth of the cost of being sick), would yield the medical profession \$15,000,000 from the same source alone, as compared with a present total of nine million dollars or even of the exaggerated figure of twenty-seven million. Moreover, the improved financial status of the public due to earlier treatment, lessened sickness, etc., would make collections better. Finally, note that this new \$15,000,000 would be in addition to whatever income the physicians would still receive for therapeutic services; which would probably be about as much as present; not because sickness would not be reduced but because much sickness not now treated would come to light. From 30 to 60 per cent of sickness requiring medical aid is now never treated. In other words, the reduction in sickness now treated by the medical profession would be, in part at least, offset by the increase in treatment of sickness now escaping attention. Periodic examinations would thus be of immense economic value; (a) to the public, in reducing the total cost of sickness to any, one hundred million dollars, instead of three hundred million as at present in Canada, and, (b) to the medical profession, in yielding to the latter from 40 to 50 per cent, \$40,000,000 to \$50,000,000, of the future reduced cost, rather than 10 per cent more or less, \$27,000,000 to \$9,000,000 of the present much greater cost. (Hill, Canadian Medical Association Journal, January, 1923, page 72).

2. (Knight, Medical Director, Metropolitan

Life, New York, December 7, 1922): "The insurance medical examination puts into our hands an opportunity for better service which we have not developed at all. Every year the records of our companies show from 7 per cent to 10 per cent of applicants rejected or postponed for insurance. The reason for this man's attitude is often one of angry disappointment, but his second reaction is one of enquiry into his state of health and of determination to do all within his power to administer himself physically fit. The psychology of the situation is entirely a favorable one for performing constructive, remedial work. . . . We should, I believe, work out a way of informing rejected and postponed applicants of the causes for rejection or postponement in every case where we can safely do so. . . . We might, too, carry through our stroke and suggest that he place himself under proper medical supervision and give him reasons to believe that he may become insurable in the future. . . . But this is only the beginning. It is the habit with some of us, in our everlasting drive for new business, to forget those that are already insured with us. . . . Medical examinations are an expensive part of the cost of life insurance administration. We can easily make them worth all that they cost, and a great deal more, through the simple expedient of the periodical follow-up examinations of the persons insured with us. Fortunately, this matter is no longer in the experimental stage. . . . We were able to show that those who were examined in 1914 and 1915 for a period of five years following the examinations, showed a mortality 28 per cent more favorable than that for the entire ordinary department in the same years. We further calculated that the saving in mortality gave a return of \$2 for every \$1 expended for the insurance examinations. . . . Every year added to the life of an adult is an addition of \$500 to the total national wealth."

3. A recent study (by H. W. Hill) of the census return of 1917 for the registration area of the United States (the latest and most complete figures then available—no similar Canadian statistics were to be had), show that of about a million deaths, approximately one-fourth were from diseases having unknown causes ("Cancer," for instance)—or indefinitely stated "diseases of unknown cause" (or unstated "miscellaneous" or similar terms). The remaining 750,000,000 deaths, from known and definitely stated causes, showed that infectious diseases, various kinds of violence, accidents, homicides, suicides, poisonings by drugs, chemicals, etc., were omitted as not properly "diseases." These constituted 8 per cent of the total).

Similar studies in New York State and in Minnesota show about 86 per cent for the former, 79 per cent for the latter due to infection. These figures are under rather than over the truth.

Many Occupations More Hazardous Than Mining

There are more than one hundred occupations more dangerous than coal mining. Window cleaning, operating farm machinery, carpentry, quarrying and excavating are some of the more familiar occupations in which the risk of death and injury is greater than in mining coal.

Nevada has passed a law (Ch. 172, Laws 1923) to enable counties to establish and maintain public hospitals, levy a tax and issue bonds therefor, elect hospital trustees, maintain a training school for nurses, and provide suitable means for the care of disabled persons.

The Management of an Infant's Diet

Malnutrition, Marasmus, Infantile Atrophy, Athrepsia

Mellin's Food
Skimmed Milk (1% fat)
Water

8 level tablespoonfuls
9 fluidounces
15 fluidounces


This mixture contains 56.61 grams of carbohydrates, thus supplying material that is utilized rapidly for heat and energy. The predominating carbohydrate is MALTOSÉ, which has the highest point of assimilation of any of the sugars, is immediately available as fuel and may be safely given in comparatively large amounts. The daily intake of protein from the employment of this formula is 15.54 grams, an amount calculated to be sufficient to replace depleted tissues and to provide for new growth. There is present in the mixture 4.32 grams of salts for replenishing inorganic elements.

The suggested modification furnishes nutrition in keeping with the character and amount of food elements best adapted to the particular demands of infants in an extreme state of emaciation and serves well as a starting point in attempting to meet the nutritive requirements of these undernourished babies.

Mellin's Food Co., 177 State Street Boston, Mass.

The Modern Method of Filing Dental X-Ray Pictures

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(View only by strong transmitted light)



LINGUAL ASPECT

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TELEPHONE, CENTRAL 1234 123 YOUR STREET
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"PHILMOUNT" SIZE NO. 1 PATENTED SWENARTON - SALLEY, INC. NEW YORK

"PHILMOUNTS" TRADE MARK PATENTED

are made in 17 different stock sizes or in any special size or style desired. . . .

Write for Samples and Prices

Any sale or use of our patented combination is an infringement and notice is given to the trade that not only will infringers be prosecuted as aforesaid, but a demand will be made, in any litigation against users, that all infringing combinations of films and mounts be delivered up for destruction.

"Philmounts" will greatly increase the detail of any film (picture), eliminate foreign objects when viewing, and protect the emulsion side of the film.

"Philmounts" are a convenient holder for viewing films and for filing and recording. An effective advertisement when mailed. . . .

Swenarton & Salley, Incorporated, 350 West 38th St., New York, N.Y.

A Hundred Cardiacs at Work

(Continued from Page 703)

is apt to make cardiacs more conscious of their physical condition. With juveniles, there seems more reason for having special classes. Without such classes it would be impossible to give the physical attention necessary. This problem of the education of the juvenile cardiac is too large a one to be touched on in this paper, however.

Fifty of these one hundred cardiacs were trained in schools and twenty different schools were used for them. Through utilizing such a variety of training centers it was made possible to give more approximately the work the trainees desired. Where there is one large school the tendency is to place all cardiacs there irrespective of their individual tastes.

Succeed Where Others Fail

Nevertheless, there are certain advantages in a large training center for the handicapped such as the Institute for Crippled and Disabled Men, in New York. The Institute trains only handicapped persons. Through contact with many men with similar disabilities, they begin to build up a technic of the best methods to use towards each special group. The Institute is a free school and it is in no way commercialized. Its chief object is the individual study of each handicapped trainee. Because of the intensive study given to each student, the Institute has often proven successful where other schools have failed.

A number of smaller schools were also quite successful in training cardiacs where the principal would give individual attention to them. A millinery school which has about ten students was found particularly for-

tunate in securing work for all the students trained there. This school simulated a small shop and the girls, as soon as they were able, worked on orders for the trade. Another good school was a barber school, where the

doing their placement work, and therefore exposed the cardiacs to the danger of being sent out to positions not suitable for them. The influence upon the civilian disabled of schools which specialize in training disabled soldiers often is not the best. The disabled adult, who is not receiving maintenance, often becomes dissatisfied in a training school where there are many soldiers receiving compensation.

Besides training in schools, the Bureau of Rehabilitation also

secured placement training for a number of cardiacs in shops or factories. Many cardiacs came to the Bureau without any means of supporting themselves while learning a new trade and it was necessary to secure work for them at once. An effort was made to get work for them where they would have a chance to learn and this was successful in some

cases. On the whole, however, the cardiac who has been quite ill usually needs an adjustment period before he can go back into industry, and the school more frequently bridges this gap than the job. Placement training was secured for twelve cardiacs as follows:

Industry	Number at Trade
Electrical assembly . . .	4
Machinist	2
Diamond setting	1
Celluloid optical frame trade	1
Toy painting	1
Chicken farming	1
Engraving	1
Mechanical dentistry . .	1

No scheme of rehabilitation is complete without some place where they can be tested out. It is not practicable, usually, to test out the working ability of a severe cardiac by putting him directly into industry. He frequently becomes ill and the employer, who may be previously prejudiced against taking cardiacs, is more reluctant than ever to take them in the future.

TABLE III.—TRAINING IN SCHOOL.

Occupation	Approximate Length of Course	Students Number of Trained
Stenography, typing and bookkeeping	6-10 months	12
Jewelry	3-6 months	8
Millinery	3-4 months (half days)	4
Flower and leather	2 years	1
Pocket book pasting	3-4 months	3
Celluloid engraving	3-4 weeks	4
Barber	2-3 months	2
Mechanical dentistry	6-7 months	2
Printing—press feeding	3-4 months	2
Switchboard operating	2-4 weeks	1
Shoe machine operating	2 years	2
Dressmaking	6 weeks	1
Crochet beading	2-3 weeks	2
Novelty work	2 years	2
Vulcanizing	2-3 months	1
Clothing operating	4 months	1
Watch repairing	1 year	1
Filing (clerical)	1 month	1



Young women, trained at millinery work.

The commercialized business schools were not always found to be good places for training cardiacs. Because of the large number of students, there was often little individual attention given. These schools also frequently have an inexperienced person

A famous Medical Product and its name

UNTIL 1869 there was no such substance in materia medica as Petroleum Jelly. For all compounding, animal or vegetable greases were used. These became rancid or deteriorated otherwise and brought impurities in contact with the human tissues.

In 1869 Robert A. Chesebrough discovered a process of manufacturing Petroleum Jelly without the aid of chemicals or acids. This process not only removed all the impurities of the crude petroleum, but avoided the presence of highly irritating residues.

Chesebrough called his product "VASELINE" Petroleum Jelly and it was immediately recognized as a wonderful addition to medical science.

His product has now become an article of world-wide repute.

All these years "Vaseline" Petroleum Jelly has remained without an equal for quality and purity.

It is unnecessary to remind those of the medical profession who know this bit of history that to assure obtaining the Chesebrough product the designation "Vaseline" should be used when prescribing petroleum jelly.

CHESEBROUGH MFG. CO., CON'S'D.
17 State St. New York

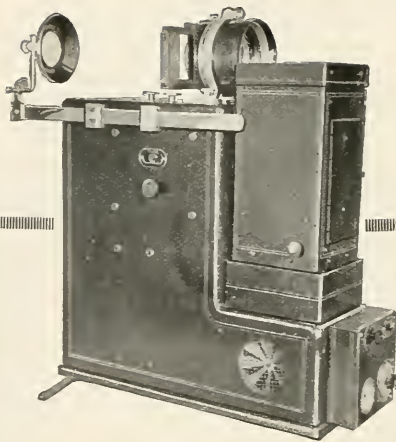
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Reg U.S. Pat Off

PETROLEUM JELLY



Every "Vaseline" Product is recommended everywhere because of its absolute purity and effectiveness.



Promote Health Through Entertainment and Instruction

Almost everyone engaged in promoting health—whether of individuals or the public—can use the moving picture as a means of entertainment or instruction.

Many hospitals, sanitariums, public health officers, etc., are applying this powerful agent with marked success. They are entertaining convalescents, instructing mothers in the care of babies, rebuilding wounded soldiers, promoting "swat-the-fly" campaigns, and a dozen other things that might be enumerated.

A great deal of film adaptable to such work is now available. And with a projector like the Acme, guaranteeing pictures equal to theatrical standards, and at the same time easily portable, you can get the maximum use out of a film. The Acme exclusive gold glass shutter is another big advantage since it enables you to stop anywhere on a film and show a still picture with no danger whatever.

Have you made a careful study of the value of moving pictures for your own work? Let us talk it over with you. Our long experience with the uses others have made of films enables us to answer many questions that are doubtless in your mind. Use the coupon for your own convenience.

ACME MOTION PICTURE PROJECTOR COMPANY

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CHICAGO

Gentlemen:

I would be glad to know more about the use of moving pictures in my work. This request of course does not obligate me in any way.

Name

Address

Position

Contact:—

The fundamental purpose of advertising is to secure contact. Classified or "want" advertising is the means used by those who are seeking positions to get in contact with those who have positions to fill and vice versa.

If the health officer needs an assistant he uses the Want Advertising columns of *The MODERN HOSPITAL* as his means of contact. If an industrial concern wishes to secure a medical director or nurse they also use this service to get in touch with someone to fill the position.

Write for particulars

Want Advertising
Department

**The Modern Hospital
Publishing Co., Inc.**

22 E. Ontario Street
Chicago

There is needed a subsidized workshop for cardiacs a shop not run for profit, but which gives employment to the handicapped cardiac while he is becoming readjusted to work. It is

ment bureau which will act in cooperation with heart specialists. Such a bureau must insist on the classification of all patients. The function of such a bureau will be to coordinate



Cardiac and crippled boys in training at the institute for crippled and disabled men.

not profitable to run a factory for those who can work two, four, or six hours a day and whose working capacity must be graded until they have reached the eight hour day, but such a shop is necessary if we are to make any scientific attack on this problem. It will be found that some cardiacs are too ill ever to go out into industry, and they could remain permanently in such a shop. Its primary purpose, however, should not be to shelter the unemployable, but to act as a scientific method of judging the potential earning capacity of every cardiac.

For years the cardiac has been one of the greatest burdens on organized charity. Where the breadwinner has been idle, charity has been forced to support the family because there has seemed no way of adjusting the cardiac to work. The economic gain to society in every cardiac rehabilitated would counterbalance any expense necessary in maintaining such a workshop.

The more one studies this problem of the placement of the cardiac the more one is impressed by its complexities. There are a few conclusions, however, which we can draw from even this brief study.

(1) It is possible for many cardiacs to work. In fact, they are usually better at work than when idle.

(2) To rehabilitate cardiacs successfully is not a simple matter. We need a specialized vocational advise-

ment bureau which will act in cooperation with heart specialists. Such a bureau must insist on the classification of all patients. The function of such a bureau will be to coordinate

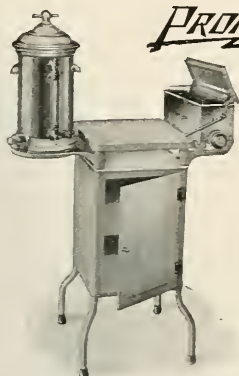
(3) There must be flexibility in the methods of rehabilitation. Training should not be concentrated in one school, but an effort should be constantly made to experiment with new methods of training.

(4) Placement training is very useful, but is not always possible, unless the potential working ability of the cardiac has been first tested out in a subsidized workshop.

(5) Employers must be educated to the fact that cardiacs may be made useful workers, if they are not exceeding their physical strength and are employed at jobs in which they are as skilled as other workmen.

Certification of Fitness for Athletics

Columbus, O., is charged by Dr. Emery R. Hayhurst with expending only \$11,000 of its budget of nearly one hundred thousand a year charged to "a program of school health," to health work proper, the rest being allocated to physical education activities not properly correlated with medical inspection and disease prevention. The argument of Dr. Hayhurst is for the requirement of a certificate of health and fitness for all children who participate in athletics, or even in organized play.



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**YOUR TIME
IS TOO
VALUABLE
TO WASTE**

waiting for a sterilizer to boil.

You need a sterilizer that heats up quickly.

Automatic control, no fuse pins,
no seams, no solder

**THE PROMETHEUS STERILIZER
STARTS STERILIZATION SOONEST**

by test by certified engineers.

**THE SAME PROMETHEUS GIVES YOU
DRESSING STERILIZATION ALSO**

Write for catalogue on your letter head

PROMETHEUS ELECTRIC CORP.

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NEW YORK CITY



Increases Vitality

The Vit-O-Net Electrical Blanket by means of soothing magnetic heat eliminates the poisons from the pores and other waste channels.

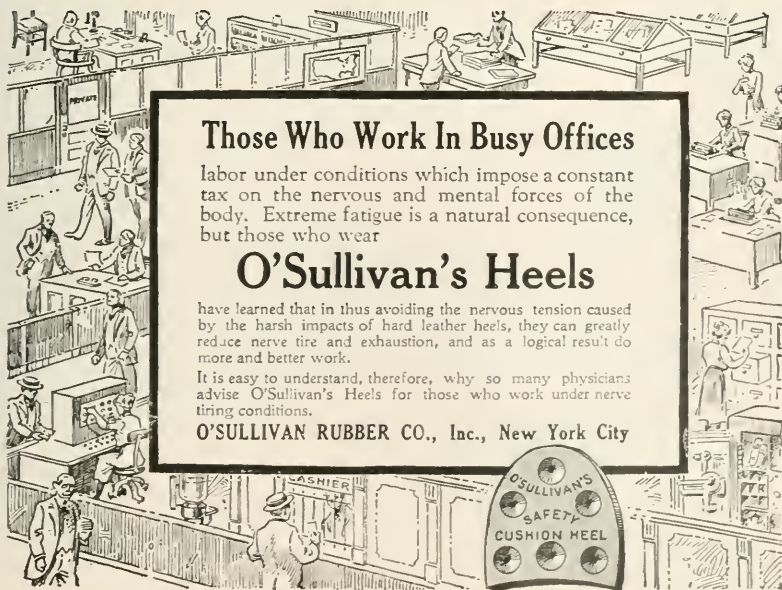
Increases vitality—enabling one to conquer disease germs. With its aid the body absorbs magnetism—the pulsating life so vitally necessary to good health.

VIT-O-NET MAGNETIC BLANKET

is now used by scores of leading physicians and hospitals for treatment of Rheumatism, Bright's, Auto-Intoxication, Arthritis, Eclampsia, Pneumonia, etc.

Write today for complete
descriptive information

Vit-O-Net Mfg. Co., 4103 Ravenswood Av., Chicago



Those Who Work In Busy Offices

labor under conditions which impose a constant tax on the nervous and mental forces of the body. Extreme fatigue is a natural consequence, but those who wear

O'Sullivan's Heels

have learned that in thus avoiding the nervous tension caused by the harsh impacts of hard leather heels, they can greatly reduce nerve tire and exhaustion, and as a logical result do more and better work.

It is easy to understand, therefore, why so many physicians advise O'Sullivan's Heels for those who work under nerve tiring conditions.

O'SULLIVAN RUBBER CO., Inc., New York City





Dr. West's TOOTH BRUSH



YOUR TEETH

**Do You Clean
Your Teeth the
One Correct Way?**

95 out of every 100 People
do not.

95 out of every 100 people
brush their teeth from
right to left. The
tooth brush skips
the spots and crevices
where decay
most often lurks!

Cleans
INSIDE



Cleans
OUTSIDE



and BETWEEN

**Here's The Latest
Scientific Method**

Approved by all Good Dentists

Brush down on your
upper teeth — up on
the lowers — from the
gums toward the biting
surfaces!

Because Dr. West's
Tooth Brush is smaller
and scientifically
shaped, it is especially
adapted to this new
method. Start today!
Your dealer will supply
you, and your dentist
will approve.

Patents allowed in United States, Great
Britain, France, Germany, Australia, New
Zealand, Canada. Numerous other patents
pending. Your rights will be fully protected.

THE WESTERN COMPANY, Chicago, New York

Carbon Monoxid Hazard to Tobacco Users

The much mooted question of whether the carbon monoxid present in tobacco smoke constitutes a hazard to the smoker in confined indoor spaces has been the subject of study at the experiment station of the Bureau of Mines at Pittsburgh. Three men, puffing merrily away for three hours in a closed chamber whose dimensions were one thousand cubic feet, experience no difficulty that could be attributed to this cause, even when the air became so irritating to the eyes that goggles became necessary. The report adds, however, that smoking would increase the smoker's hazard if he were caught by carbon monoxid gas from such sources as occur in the mining industry.

The West Virginia Department of Health is making strenuous efforts to qualify for admission to the birth registration area.

Improvement in public drinking water supplies in West Virginia is given chief credit with the reduction in the typhoid fever death rate in the state 50 per cent in five years.

A conference will be held in October under the auspices of the American Engineering Standards Committee looking toward an amalgamation of the National Electrical Code, which deals with fire hazards, and the National Electrical Safety Code, which deals with personal hazards, into a single document.

The members of the committee arranging for the conference are David Van Schaack, Aetna Life Insurance Company; Cyril Ainsworth, Pennsylvania Department of Labor and Industry; F. O. Evertz, Ohio Inspection Bureau; F. M. Feiker, Society for Electrical Development; H. W. Forster, Independent Bureau, and S. J. Williams, National Safety Council.

The New York State Conference of Charities and Correction will meet November 13-15, 1923, in Rochester. There will be general sessions on the following subjects: Children, Delinquency, the Family, Industrial and Economic Problems, Mental Hygiene, and Specialized Education. Richard W. Wallace, of the State Board of Charities, Albany, N. Y., is Secretary of the Conference.

Oregon Cities to Provide School Dental Clinics

Designed primarily to permit the city of Portland to divert certain public school funds for dental purposes, the Oregon legislature of 1923 passed a measure which permits cities having a school attendance of 25,000 to finance or to assist in financing school dental clinics to those desiring the service. This measure is to be voluntary and not in any sense is it to be compulsory. Effort to put through similar provisions for the entire state was defeated prior to the passage of this bill.

Fashions in Self-Medication

Wellsworth Life, the official organ of the American Optical Company, proposes that employees shall at least have opportunity to become informed on the hygiene of the eye, declares in a recent issue against fashions in popular eye remedies, and observes that they change about once a year for better or worse. As far as eye remedies are concerned, just now it is boric acid. In preceding years it was salt and water. Earlier, rose water was in vogue. Dr. Quack's eye remedy, as he admits in the label, "strengthens weak eyes" and Dr. Bunk's famous eye drops at a dollar a bottle "if used regularly," will enable one to read without glasses, have both been used; "a flax seed will always remove a foreign body," or a little warm milk and an eye stone were highly prized.

"Strangely enough," says the journal, "two of the remedies are of value. Practically every eye wash which is on the market, no matter whether the price is 10c or a dollar for a small bottle, consists essentially of boric acid. Boric acid is of value, but why pay a dollar for an ounce of its solution, when the dollar would make a bathtub full of the same stuff?"

"Some inflamed eyes need eye drops — others need ointments. Others need to be bandaged and kept at rest. Others need small amounts of belladonna or other drugs to conserve the eyesight. The best is none too good for your eyes and they are too valuable for mechanics to tinker with. You can take your watch to a blacksmith if you wish, or your automobile to a locksmith, but when the light goes out of your windows you may have only yourself to blame. Better use the medical service which is free or see your family doctor. Don't take chances with your most valuable eyes."

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N H

The Hetch Hetchy Water Supply of San Francisco

*With Water, Water Everywhere, and Not a Drop to Drink, San Francisco Has Ever Had to Go Far Inland for Its Fresh Water Supply.
The Hetch Hetchy Project is an Engineering Triumph.*

BY M. M. O'SHAUGNESSY, CITY ENGINEER, SAN FRANCISCO, CALIF.

SAN FRANCISCO is situated at the apex of a peninsula, with salt water on the north, east and west sides. Accordingly, it has been necessary from the beginning of the city's growth to secure water supply from sources some distance away.

The Spring Valley Water Company, which owns the system now supplying the city with water, began in 1862 to furnish water from reservoirs on the peninsula south of the city. The system was later augmented by bringing water from Alameda Creek and its tributaries, east of the bay. The company now supplies an average of 36,300,000 gallons daily, of which sixteen million gallons is taken from the peninsula, and 20,300,000 gallons from across the bay. Work now in progress will within two years make available about twenty-four million gallons daily additional water.

It was early realized that the city would eventually outgrow the water sources of the adjacent country, including those on the other side of the bay. In the years 1900 to 1902 studies

a municipally owned water supply sufficient to meet the needs of the city far into the future. The result of these investigations was the selection of the upper Tuolumne River as the new source, with Hetch Hetchy Valley, Lake Eleanor, and Cherry Valley as the principal reservoir sites.

Hetch Hetchy Valley is in the Sierra Nevada, 145 miles east of San Francisco, at an elevation of 3,500 feet. The watershed tributary to the reservoirs named covers an area of 652 square miles. It contains no permanent habitations and only one summer camp of any consequence. A large proportion of the surface is bare granite. The hardness of water at Hetch Hetchy is less than 20 parts per million, as against 100 parts in San Francisco's present supply.



The Hetch Hetchy Reservoir. Water is beginning to collect behind O'Shaughnessy Dam.

and surveys were made of water sources over the entire central part of California, with the aim of securing

The aqueduct route from Hetch Hetchy to the city, after penetrating the westerly part of the Sierra



Hetch Hetchy aqueduct. Delivering steel pipe at Red Mountain bar siphon.

Nevada, crosses the San Joaquin Valley, then passes through a second range of mountains (the Coast Range), then underneath San Francisco bay, and finally into the city by way of the peninsula; a distance along the line laid down for the aqueduct of 168 miles.

Water is to be delivered to the city by gravity through an aqueduct whose ultimate capacity is to be four hundred million gallons per day. Water is to be conveyed through the mountain ranges in tunnels, and across both valleys in closed steel pipes.

The drop in elevation between Hetch Hetchy

and San Francisco is sufficient to carry the water the entire distance by gravity, and leave a surplus head of 2,500 feet, which will be used to operate a series of hydro-electric power stations. Storage is provided for at the upper end of the aqueduct by Hetch Hetchy and Lake Eleanor reservoirs, and near the point of delivery by connection to the reservoir of the Spring Valley Water Company on the peninsula.

Bonds were voted in 1910 to finance the Hetch Hetchy work, but construction was not begun until the right to make use of public lands was obtained from the Government. In 1913 Congress passed an act granting to the City of San Francisco the right to construct, operate and maintain the dams, aqueducts, power plants, roads, trails, etc., which are a part of its water supply and power system in the

reservoirs, respect certain prior irrigation rights, and pay a graduated tax



Pouring concrete at night into O'Shaughnessy Dam. The lights and spouting system were suspended from cables anchored to the sides of the canyon.

up to a maximum of \$30,000 annually.

On the part of the Government, the act provides the following sanitary regulations to protect the reservoirs and their tributary streams against pollution:

(a) That upon the completion of the Hetch Hetchy Dam or the Lake Eleanor Dam, in the Yosemite National Park, by the grantee, as herein specified, and upon the commencement of the use of any reservoirs there-

Yosemite National Park, in the adjacent Stanislaus National Forest, and in other public lands.

The city is required under the act to prosecute the construction work without lengthy interruptions. The city must make its permanent structures of a slightly design, must observe precautions against fire and other minor regu-

by created by said grantee as a source of water supply for said grantee, the following sanitary regulations shall be made effective within the watershed above and around said reservoir sites so used by said grantee:

First. No human excrement, garbage, or other refuse shall be placed in the waters of any reservoir or stream or within three hundred feet thereof.

Second. All sewage from permanent camps and hotels within the watershed shall be filtered by natural percolation through porous earth or otherwise adequately purified or destroyed.

Third. No person shall bathe, wash clothes or cooking utensils, or water stock in, or in any way pollute, the water within the limits of the Hetch Hetchy Reservoir or any reservoir constructed by the said grantee under

the provisions of this grant, or in the streams leading thereto, within one mile of said reservoir; or, with reference to the Hetch Hetchy Reservoir, in the waters from the reservoir or waters entering the river between it and the "Early intake" of the aqueduct, pending the completion of the aqueduct between "Early intake" and the Hetch Hetchy Dam site.

Fourth. The cost of the inspection necessary to secure compliance with the sanitary regulations made a part of these conditions, which inspection shall be under the direction of the Secretary of the Interior, shall



Hetch Hetchy aqueduct. Mountain Division tunnel with lining partly completed.

be defrayed by the said grantee.

Fifth. If at any time the sanitary regulations provided for herein shall be deemed by said grantee insufficient to protect the purity of the water supply, then the said grantee shall install a filtration plant or provide other means to guard the purity of the water. No other sanitary rules or restrictions shall be demanded by or granted to the said grantee as to the use of the watershed by campers, tourists, or the occupants of hotels and cottages.

These regulations will affect only a few summer camps and such private camping parties as will visit the locality. There are no industries upon the watershed, and the greater part of it is uninhabited.

The aqueduct will consist almost entirely of tunnel and pipe, so no sanitary problems arise in the lower divisions of the system.

The city began construction in 1914. The first unit of construction was the Hetch Hetchy Railroad, extending sixty-eight miles from Hetch Hetchy Junction to the site of O'Shaughnessy Dam, following generally the line of the aqueduct. A temporary hydro-

electric power plant was built, taking water from Cherry Creek and generating about 3,000 KW. for use on dam construction, tunneling operations, etc.

Lake Eleanor, the first unit of the storage system, was completed in 1918. It is a buttressed arch dam 1,260 feet along the crest and seventy feet high above stream bed. It raises the level of Lake Eleanor (a natural lake before the construction of the dam) and makes available a storage of about nine billion gallons. Upon its construction, the dam was immediately put to use to regulate the flow of the Cherry River, from which water to operate the construction power plant is diverted.

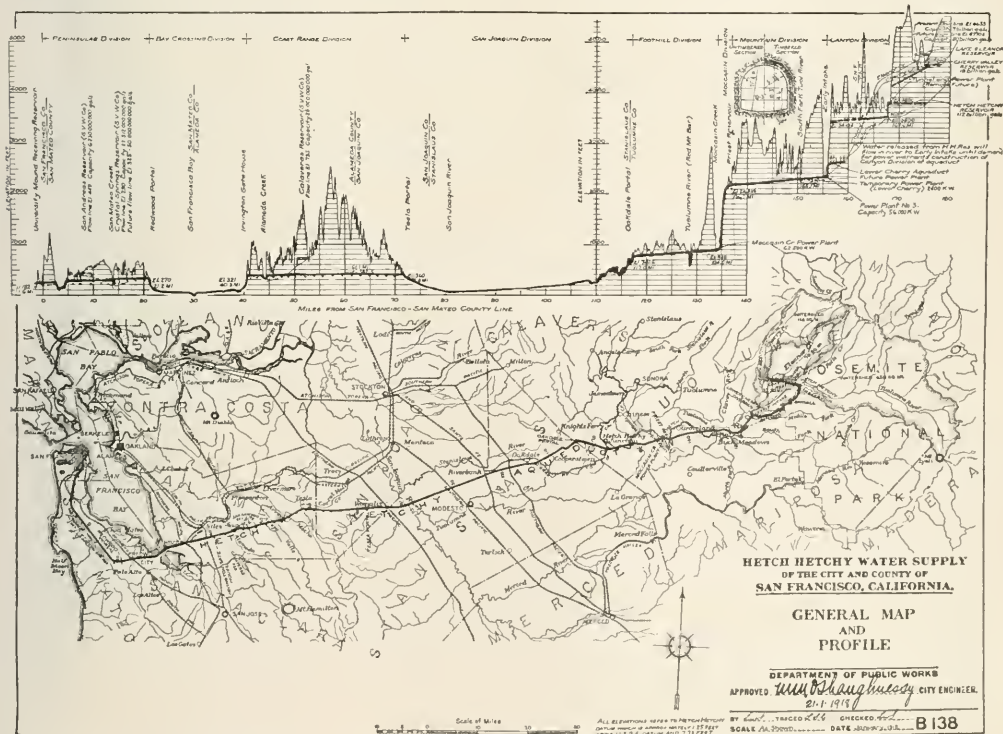
The dam at Hetch Hetchy, on the Tuolumne River, was completed in February of the present year. The dam is of the gravity type, built of cyclopean masonry. It is 114 feet deep in foundation below stream bed and 226 feet high from the steam bed to crest, and 600 feet long at the crest. It impounds water from a watershed of 459 square miles, the capacity being sixty-seven billion gallons. It was built by the Utah Con-

struction Company at a contract price of about six million dollars.

The stream from Lake Eleanor and from Hetch Hetchy Reservoir run together twelve miles below the latter. Near this point is the intake of an 18-mile tunnel which forms the upper or Mountain division of the aqueduct. Over 95 per cent of this tunnel has been excavated. The greater part of the tunnel will be lined with concrete, to an inside area of eighty-eight square feet. The slope of the tunnel is slightly greater than the hydraulic grade, so that the tunnel will flow full. The capacity is four hundred million gallons per day.

Water will be discharged from the Mountain Division tunnel into a forebay reservoir, and thence supplied to the Moccasin Creek Power Plant, which is now under construction. Ninety-three thousand horsepower generating capacity is being installed, with provision for future addition of 46,000 horsepower more. The 24-hour average power capacity (determined by the amount of water available) will be seventy thousand horse-power.

Right of way is being purchased for aqueduct—(Continued on Page 834)



The lower map shows the course of the right of way from Yosemite Valley. The upper relief map indicates the contour of the area covered.

Physical Condition of Jewish Children in Poland

Nutritional Factors Here Cannot Be Dissociated From Hygienic Factors. Practically All of the Rachitic Children Were Likewise the Victims of Bad Housing

BY SAMUEL NEWMAN, M.D., LATE MEMBER MEDICAL COMMISSION, AMERICAN JOINT DISTRIBUTION COMMITTEE, VOLUNTEER PHYSICIAN, CHILDREN'S CLINIC, UNIVERSITY OF VIENNA, VIENNA, AUSTRIA.

BY the end of 1920, the American Joint Distribution Committee considered conditions in Poland sufficiently stabilized to plan a program of constructive medico-sanitary work among the three million Jews living in that country. In January, 1921, a medical commission was sent over to Poland, under the leadership of Dr. Harry Plotz, to study and report upon the medico-sanitary situation in Poland, particularly with a view of outlining a program of medical reconstruction of Polish Jewry.

It was to be expected, *a priori*, that the war and post-war conditions in eastern and central Europe had a greater deteriorating effect upon the health of the Jewish masses than upon the non-Jewish. This presumption was based upon the following considerations:

(A) Jews, being chiefly city dwellers, were subjected to a greater degree to the ill effects of the bad housing conditions prevailing all over Europe as a consequence of the war.

(B) The urban classes of population suffered more from food shortage than the rural classes.

(C) Hundreds of thousands of Jews were expelled from the Western war areas by the Russian military authorities and were driven into the interior of Russia. This procedure brought economic ruin to a great proportion of the Jewish population and caused the dissemination of epidemic diseases among them.

(D) The Bolshevik invasion of Poland caused a great influx of refugees from the Eastern regions into the interior cities, thus aggravating the bad housing conditions and spreading also epidemic diseases.

The studies of the Medical Commission support the presumption that the war had a particularly telling effect on the health of the Jews in Europe. This paper, however, is limited to a study of the physical condition of Jewish children only, particularly of the poor classes. To the student

of health problems in Poland, special studies of the health conditions of the Jews of that country are also important, as they constitute 14 per cent of the total population of Poland. In Table I are the records of the physical examination of 6,308 war orphans, who were gathered in by the American Joint Distribution Committee for support and care.

Analysis of Table I

In the examination of this group of children uniform examination blanks were used, but the local physicians—who actually did the examining—did not carry out the work in accordance with a uniform, rigid objective standard, such as would be required for reliable statistical data. However, all the errors were on the side of conservatism and omission. The data that has been supplied by the local examiners has been resifted and classified in a way to give the least possible error.

Under malnutrition—admittedly a vague clinical entity—were classed all cases with the diagnosis of undersized, light weight, very anemic, and starved. It is to be regretted that no uniform height-and-weight table, or any of the well tried out nutrition indexes, were used in these examinations. Yet, it is the author's impression that had any nutrition index been used, the number of cases classed under malnutrition would have been even still higher. The Polish physician, working amidst starvation and disease, naturally would be inclined to place the standard of the normal below the point we would consider it to be. Further, observation justifies this opinion. In the examination of school children in Lodz in accordance with the Camerer scale, the local examiners did not class a child as undernourished if its height was above that for its age and its weight below that for its height. In other words, a child was considered undernourished only when its height did not exceed

that indicated on the scale for its age, and its weight was appreciably below that indicated for its height.

Dental caries, was probably correctly recorded. A diagnosis of pulmonary tuberculosis was discarded. A diagnosis of pulmonary tuberculosis below the age of puberty falls within the field of the trained pediatricist who must also resort to the Roentgen rays and tuberculin test as diagnostic aids. All conditions of the lungs have been grouped under one heading, as diseases of the lungs.

Under lymphadenitis are grouped cases diagnosed as cervical adenitis, tuberculous glands of the neck, and adenitis. The inquiry on the examination blanks was after active cases of, and signs of past, suppurating glands in the cervical region. There is no doubt that the majority of cases under the heading, lymphadenitis, represent adenitis tuberculosa.

In the cases diagnosed as rachitis it simply means a rachitic bony deformity. Among these children there were very few infants, and there can be no question of the finer Roentgen and blood-chemical methods having been used in the diagnosis of this condition. A diagnosis of ricket in Poland beyond the nursing age simply means a marked rachitic deformity: It is cases similar to Fig. 1 that are called rickets in Poland.

In the differential diagnosis of favus, many other diseases of the scalp come into consideration, such as psoriasis, seborrhea, eczema, impetigo, lupus erythematosus, and herpes tonsurans. Polish physicians are familiar with favus and it is correctly diagnosed by them. The same is also true of trachoma. However, I am of the opinion that many cases classed under, chronic conjunctivitis, were really conjunctivitis phlyctenulosa, a tuberculous manifestation in the mucous membrane of the eye.

Analysis of Table II

Table II presents the records of the

physical examination of 19,543 children of the poorer classes in the Brest-Litowsk, Ukrainian, and Bialystok districts, or the Eastern provinces of Poland. These examinations were conducted by local physicians under the management of Doctors Wendkos, Golub, and Friedman, members of the Medical Commission.

With the exception of one thousand war orphans and 274 refugees from Russia, all these children are of the poorer classes. Even though these examinations were directed by members of the Medical Commission, yet no complete returns were sent in. However, the data of this group is more reliable and represents a nearer approximation to the true physical condition of Jewish children in Poland. The total disease percentage in this table is 75.5 as against that of Table I, which is 61.3.

The percentage of malnutrition in this group of children is nearly twice as high as in the previous group. Dental caries were noticed in nearly similar proportion in both groups of children. Under diseases of the lungs endeavor has been made to list only chronic conditions, in order to obtain an idea as to the prevalence of tuberculosis. We therefore see that while Table I. shows under diseases of the lungs a percentage of 8.5, Table II. shows only a percentage of 2.25, having eliminated as much as possible non-tuberculous conditions.

Concerning the small percentage of heart lesions listed in Table II., it may be said that from other studies on the frequency of heart lesions

among the children in Poland, Dr. Wendkos entertains the opinion that heart lesions resulting from rheumatic fever are far less common in Poland than in the United States. Dr. Wendkos tries to explain this by the lesser occurrence of oral sepsis among the

districts of Poland as compared with the interior regions. The local physicians did not enter into the finer points of the diagnosis of tuberculous lesions of the joints, but have simply listed the more evident forms. It was not unusual at all to find among school

children advanced cases of tubercular disease as that presented in Figure 2.

Table III presents several studies in the health condition of Jewish children in Congress, Poland, a section which fared better during the war than other sections of Poland. These studies concerned themselves mainly with the question of tuberculosis. Uniform methods of examination were carried through by the author, assuring himself of uniformity by making the examinations himself. Roentgen and laboratory methods of diagnosis, as well as cooperation of specialists, were resorted to when it became necessary to clear up a doubtful point.

The physical examination of 1,810 children in Congress, Poland, included 530 war orphans and

1,280 school children of the poor social strata. The examination was limited to a few diseases.

Analysis of Table III

In the group listed as affected by *Adenitis tuberculosa*, both active and healed cases were included. In the examination for evidence of past and present adenitis tuberculosa all other conditions were kept in mind which might cause an adenitis, particularly of a chronic type, such as malnutrition, rachitis, and lymphogranu-

TABLE I.—FINDINGS RECORDED IN PHYSICAL EXAMINATIONS OF 6,308 WAR ORPHANS IN POLAND.

Disease	Number of cases	Per cent of total
Malnutrition	859	13.5
Dental caries	762	12.
Diseases of lungs	533	8.5
Lymphadenitis	503	8.
Disease of the heart	252	4.
Rachitis	246	3.9
Favus	233	3.7
Scabies	175	2.8
Other diseases of skin	76	1.2
Gastro-intestinal	70	1.1
Chronic conjunctivitis	57	0.9
Trachoma	18	0.27
All listed diseases	3,884	61.3

TABLE II.—FINDINGS RECORDED IN PHYSICAL EXAMINATIONS OF 19,543 CHILDREN IN BREST-LITOWSK, UKRAINIAN, AND BIALYSTOK DISTRICTS.

Disease	Number of cases	Per cent of total
Malnutrition	4,626	23.70
Dental caries	3,127	16.
Diseases of lungs	440	2.25
Lymphadenitis	3,010	15.3
Diseases of heart	191	0.97
Rachitis	542	2.75
Favus	638	3.23
Scabies and diseases of skin	653	3.34
Chronic conjunctivitis	816	4.15
Trachoma	255	1.32
Tuberculosis of joints	277	1.42
Otitis media	146	0.75
Scurvy, Hernia, Basedow	46	0.26
All listed diseases	14,765	75.5

TABLE III.—PRESENTS RESULTS OF SEVERAL STUDIES IN HEALTH CONDITIONS OF CHILDREN IN CONGRESS POLAND.

Disease	Number of cases	Per cent of total
Adenitis tuberculosa	95	5.5
Malnutrition	547	30.
Rachitis	362	20.
Favus	74	4.08
Tuberculosis of lungs	27	1.45
All listed diseases	2,187	101.2

TABLE IV.—POSITIVE TUBERCULIN SKIN REACTION AMONG JEWISH CHILDREN IN POLAND.

Age in years	No. of cases tested	No. of cases positive	Per cent of cases positive
0-1	480	74	15.5
2	200	37	18.5
3	320	98	30.6
4	215	90	42.
5	80	22	26.
6-7	310	254	82.
8-9	400	328	81.
10	500	455	91.
11-12	650	639	94.5
Total	3,185	1,997	63.

children in Poland, particularly the *Streptococcus viridans*, as compared with its occurrence in the United States. However, no extensive bacteriological work has been done in Poland to clear this point.

Favus is listed in Table II. as occurring in the same percentage as in Table I. Tuberculosis of joints also reported in Table II. From personal observation the author has been led to believe in the greater occurrence of tuberculosis of the joints among the children of the eastern dis-

loma. The disfiguration caused by the cicatrization of the tubercular glands in the cervical region was at times very depressing.

In listing children in the malnutrition group only such cases were selected which could not show an immediate cause for the undernourishment. In other words, an attempt has been made to establish malnutrition as a clinical entity. It must be admitted that such a procedure is highly artificial, for it may be argued rightly that malnourished children form a class from which those with manifest tuberculous lesions are recruited. Yet in Poland it was found expedient to designate a clear-cut group of children as malnourished and to subdivide them into different grades in order to know which children to admit to certain social relief benefits, such as kitchens, summer colonies, etc.

In designating a child as malnourished the *Sacratama* method of Pirquet¹ was used. This method, as it is well known, estimates the four main qualities of the condition of nutrition; namely, *Sanguis*, the blood content of the skin; *Crassitudo*, the subcutaneous fat; *Turgor*, the water content of the subcutaneous tissue; and *Muscularis*, the strength and quality of the musculature. Each of these four qualities is graded thus: (i) very much above normal; (e) above normal; (a) normal; (o) subnormal; (u) very much below normal.

A child with a pale skin and muscosa, with diminished subcutaneous

fat, with normal turgor, and flabby muscles, would receive a rating of *sacratama*.

Diagnosis in Young Subjects

The examination for this rachitis is a highly subjective matter and in the hands of different examiners will

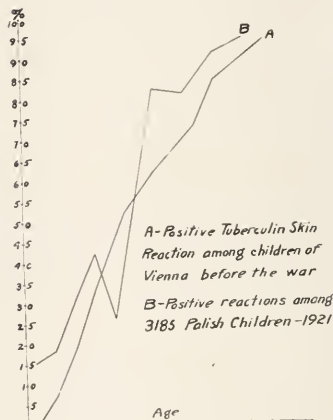


Chart I.—An idea of the incidence of tuberculous infection was sought through the tuberculin reaction with the above results. The rate of infection increases with the age of the child.

yield varying results. In the examination of very young children no examination is satisfactory unless Roentgen rays and chemical blood analysis are made use of. In this series of examinations there were very few children under two years of age and therefore no florid cases were noticed. All cases noted were healed and only manifested themselves through bony deformities ranging from only the rachitis rosary to severe cases of scoliosis.

The percentage of favus is strikingly similar in all the three groups of examinations, ranging from 3.23 per cent as the lower figure in Table II. to 4.08 per cent in the last group of children.

In the 27 cases of pulmonary tuberculosis found in the last series of examinations, 13 cases were corroborated also by Roentgen diagnosis. These cases ranged between 9 and 14 years of age, 7 occurring at 14; 8 at 13, 4 at 12; 4 at 11; 2 at 10; and 2 at 9.

An attempt was made to obtain an idea of the incidence of tuberculosis infection among Jewish children in Poland by means of the tuberculin

skin reaction. This method, because of its simplicity and the readiness with which results can be interpreted, was found very useful in Poland. In order to obtain uniform results the same stock of old tuberculin, Koch, was used.

Evaluation of Data

In evaluating the data in all the foregoing tables we note a very high rate of disease among Jewish children in Poland. The greatest number of disease may be said to have been caused by malnutrition—meaning here simply the lack of nourishing food. Tuberculosis in children may be rightly termed a disease of malnutrition. While not intending here to enter into a discussion of the etiology of rickets, the author wishes to say that in Poland it was found impossible to dissociate the nutritional factor from the hygienic factor. Those classes of the population which suffered most during the war from lack of food were practically also those subjected to bad housing conditions. The high incidence of favus among Jewish children in Poland, as noticed by all the members of the Commission, may also be due to the bad housing conditions. Only several months ago all the Jewish community buildings in the Eastern border regions of Poland were congested with reimmigrants from Russia.

This study suffered from the fact that no pre-war data on the physical condition of Jewish children is here presented. Unfortunately no such data could—(Continued on page 896)



Fig. 1. The usual type of rachitic deformity met with in Poland.



Fig. 2.—Tuberculosis of bones in child attending school.

A Fresh Air Camp for Under-nourished Children

The Sun Cure, Often Employed for the Treatment of Tuberculous Children, Is Here Effectively Used With the Pre-Tuberculous

By DONALD D. SHIRA, A.B., M.D., DIRECTOR OF HEALTH; AND ELIZABETH J. YOST, R.N., DIRECTOR OF NURSES, AKRON, OHIO.

IN every community there are proportionately a large number of undernourished children who present a serious problem to official and voluntary health agencies. The importance of the proper care and supervision of these children, especially in reference to a carefully planned anti-tuberculosis program, can scarcely be overemphasized. Often found in homes of actual want with the usual concomitants, ignorance and insanitary surroundings, many of them in direct contact with active cases of pulmonary tuberculosis, these children offer most fertile soil for the spread of this dread disease. For these unfortunates society provides no place of refuge until they have actually contracted the disease, when the doors of hospitals and sanitoriums are thrown open to them.

Why wait until that happens? Why not take, in time, whatever measures are necessary to prevent such tragedies and to insure to these children a life of usefulness free from physical suffering and mental anguish?

In an endeavor to meet this situation in Akron, Camp Christmas Seal was established. Financed by the sale of Christmas seals it was sponsored by the Federation of Women's Clubs and was under the direct supervision of the health department. This article is written for the sole purpose of giving the benefit of our experience to others who might be contemplating establishing a similar camp.

Having decided to establish a camp, the first consideration is the selection of a site. This should be done very carefully. There should be plenty of fresh air, with protection against heavy winds; it should have both shaded and sun-lit areas, abundance of pure water for drinking and bathing purposes, and means for proper disposal of sewage.

For Camp Christmas Seal an uncultivated fruit farm belonging to the city of Akron and overlooking a beautiful inland lake, was secured. There are a commodious farm house and an ex-

ceptionally large barn on the premises. Both house and barn were screened, the house serving as kitchen, dining room, and dormitory for the girls and female attendants, the barn as a dormitory for the boys and a playground in inclement weather.

Selection of Children

Akron is fortunate in having under way a comprehensive anti-tuberculosis program. The work is well organized under the Springfield Lake



"London Bridge is Falling Down."

Sanatorium and the Akron Health Department—a modern sanatorium, open window rooms, tuberculosis clinics, school physicians and special tuberculosis nurses. Through these sources it was very easy to apprehend a large number of children eligible for such a camp.

Some two hundred children were recommended, but since the camp could accommodate only twenty-four it became necessary to exercise minute care in making the selections. Dr. Clarence Hyde, superintendent of Springfield Lake Sanatorium, made a thorough physical examination on each of the two hundred children. The decision as to the eligibility for ad-

mission was based upon age (six to twelve years inclusive), the height-weight index, the general physical condition, absence of any infectious or contagious disease, the home conditions, and the family history. Diagnosed cases of pulmonary tuberculosis were not accepted.

It might, by way of suggestion, be well to mention the advisability of including a mental test in the examination. One mentally deficient child in a camp of this nature may exert a very deleterious influence upon the general morale, and it is highly essential that firm discipline be preserved at all times.

It was required that each child admitted to the camp present a consent slip, signed either by the parent or guardian, relieving those conducting the camp of any responsibility in case of accident, illness, or loss of property.

Group accident insurance was carried on the children at the camp.

The consent slip reads as follows:

Camp Christmas Seal Conditions

The object of the *Fresh Air Camp* is *Better Health*. Children will be under the supervision of a physician: Nurses will be on duty night and day. There will be a man and wife as caretakers and a professional cook to prepare and serve the meals. Children will build strong healthy minds and bodies and be able to enter school ready to cope with the year's work. Camp is limited to 24 children.

The parent or guardian accepting this favor from the Health Department and Federation of Women's Clubs, assumes all risk of accidents and expressly agrees that the Health Department and Federation of Women's Clubs shall not be liable under any circumstances whether by negligence of its agents or otherwise, for an injury to the person, or for any loss or injury to the property of the person accepting this favor. The Health Department will do all in its power to protect the life and property of the children accepting this favor.

I accept the foregoing conditions.

Parent
Guardian
Name of Child.....

Attendants

Three Health Department nurses were on duty constantly. It is not well to change the nursing personnel during the course of the camp. After the children become acquainted with nurses who have learned their peculiarities and idiosyncrasies, to substitute strangers disturbs the



Children did not seek a shady spot, but a place in the sun for story hour at this fresh air camp, where the sun plays an important part in camp life. Children at the camp wore no clothes other than trunks during sun-cure periods. Sun cure was supervised by Dr. C. L. Hyde, superintendent of the tuberculosis hospital, who saw to it that the protective coat of tan was acquired gradually.

camp equilibrium and favors the lowering of the disciplinary standards.

For the general care of the camp and the cooking, two women and one man were employed, the other two, man and wife, twenty-five dollars per week, keep included for all.

Health department physicians made regular visits to the camp.

These of course are variable, depending entirely upon the character and setting of the camp and the number of children to be cared for. In this case the local Red Cross Chapter loaned cots, mattresses, pillows and furniture. Each child was supplied with one double cotton and one heavy woolen blanket. Each child had his own wearing apparel as well as personal articles.

Boy's Camp Outfit

- 3 pairs pajamas or 3 nightgowns.
- 1 pair shoes.
- 3 pairs stockings.
- 4 pairs washable pants.
- 6 waists.
- 1 sweater or coat.
- 1 hair brush or comb.
- 1 tooth brush.
- 6 handkerchiefs.
- 3 suits underwear if necessary.

Girl's Camp Outfit

- 3 nightgowns.
- 1 pair shoes.
- 3 pairs stockings.
- 4 dresses.
- 3 pairs bloomers or underwear.
- 1 hair brush and comb.
- 1 toothbrush.
- 6 handkerchiefs.

Food:—No attempt was made to force-feed the children. A great variety of wholesome, substantial food was served—plenty of milk, eggs,

vegetables, fruit, bread and butter and some meat.

Daily Schedules:—A daily schedule was adhered to as strictly as circum-



Blowing bubbles, one of the favorite pastimes of children at the fresh air camp.

stances would permit. Visiting hours were limited to Sunday afternoon. The schedule, adopted after much careful thought follows:

Camp Christmas Seal Schedule

Rise	6:30 a. m.
Breakfast	7:00 a. m.
Sun Cure	8:00-9:30 a. m.
Bath—Showers	9:30-10:00 a. m.
Rest Cure	10:00-11:00 a. m.
Play—get ready for dinner	11:00-12:00 a. m.
Dinner	12:30 p. m.
Rest	1:30-3:00 p. m.
Sun Cure	3:00-4:30 a. m.
Showers	4:30-5:00 p. m.
Play	5:00-6:00 p. m.
Supper	6:00 p. m.
Play	6:30-8:00 p. m.
Bed	8:00 p. m.

Of course the length of time devoted to the sun cure and rest varied, the sun cure period being gradually lengthened and the rest period shortened until the two were equalized to conform to the schedule as indicated. This was supervised by Dr. Hyde who has had a great deal of experience with the sun cure in the treatment of tuberculosis. During the sun cure loin cloths only were worn thus exposing the entire body surface to the sun's rays.

RESULTS: The results obtained were extremely gratifying. The improvement possible in the physical condition of such children in the short period of six weeks is remarkable. The change in their appearance became apparent to the most superficial observers. Pale faces became ruddy, wistful looks were replaced by those of happiness, flabby muscles became firm and rounded out, and the posture improved.

Very accurate records were kept, pulse, respiration, temperature and weight being checked up twice each week. The—(Continued on page 836)



These little warriors fight for good health at Camp Christmas Seal while playing Robin Hood. Heliotherapy (sun cure) which is being successfully used in children at the Springfield Lake Tuberculosis Hospital, at Akron, O., was also used at the Fresh Air Camp, maintained during the summer months by the Akron Health Department and the Federation of Women's Clubs.

Cardiac Clinic of the Michael Reese Dispensary

Definitely Organized to Meet the Needs of Patients with Cardiac Handicap Who Require Prolonged Supervision As Well As Social Adjustment

By ELEANOR DODGE, SOCIAL WORKER, CARDIAC CLINIC OF THE MICHAEL REESE DISPENSARY, CHICAGO, ILLINOIS.

THE Cardiac Clinic of the Michael Reese Dispensary is one of twelve refer clinics, drawing its patients primarily from the general medical and pediatrics departments. The only exception to this method of admission to the special clinic is that hospital patients may be referred directly to the specialized department from the Michael Reese Hospital of which this dispensary is the out-patient department. These patients referred from the hospital are interviewed in the Dispensary admitting room just as are all other patients who are new to this institution. Ten per cent of all individuals applying for dispensary care are not accepted as patients because they are found to be financially ineligible for this service. They are referred to the private offices of physicians serving on the staff of the dispensary. The worker in the admitting room, a member the social service department, in accordance with the general policy of the dispensary, is particularly lenient with those patients coming directly from the hospital with definite cardiac diagnoses or other significant conditions which necessarily mean prolonged medical treatment and supervision as well as frequent social adjustment.

The Cardiac Clinic meets weekly on Saturday mornings. Though the clinic is a unit, it is divided into a children's and an adult service. Each of these services has its own staff and quarters. The physicians serving the adult group are drawn from the general medical department of the Dispensary and those serving the children from the pediatric department. At the present time there are on the staff: 2 physicians in children's cardiac clinic; 3 physicians in adult cardiac clinic; 1 clinic secretary; 1

nurse, and 1 social worker who serves both groups of patients.

The clinic secretary, who is a volunteer, admits each patient to the clinic, recording in the day book name, address and floor on which patient lives. Later she records on the individual medical records the patient's temperature, pulse and weight—which have been ascertained by the clinic nurse—and sees that the doctors re-

details as the patient's participation or non-participation in gymnasium work or other group exercises is also noted. This detailed information is kept by the worker in a card file for her own use but which is at any time accessible to the physicians. A summary of the salient points obtained, however, is at once transcribed to the patient's medical record.

The medical record used in the children's cardiac clinic is a form based on that developed by Dr. William St. Lawrence of New York. In the adult clinic the physicians have previously used blank sheets making their own notations. After careful study of the charts used in several other cardiac clinics, a new form has recently been developed. As each patient is accepted in this clinic, complete laboratory tests, including x-ray and electrocardiograph are recommended. With these reports plus clinical findings, the doctors are now grouping the children according to their degree of exercise tolerance. It is our aim to have classes providing graduated exercises for these groups.

Outside the clinic the activity of the social worker divides itself into three phases. These are the steering problem, case work with patients referred by physicians in the clinic, and the medical follow up problem. The so-called steering problem includes the group of patients under observation and treatment in the cardiac clinic who are also known to other social agencies. When these other agencies are carrying the major responsibility of the patient, the medical social worker gives information and instruction to the patient in the clinic only, as she has no contact with him in his home. Supplementary instruction and reports, however, are



Physician examining patient in the Children's Cardiac Clinic.

ceive these charts. She makes laboratory appointments and takes charge of clerical routine connected with the clinic. She also takes the previous medical history of new patients, as time permits before the arrival of the physicians in clinic.

All Cases Investigated

The social worker interviews each new patient reporting to the clinic for the first time. In this interview, she seeks to learn the family group with the general health of each member, the home situation including financial, living, and sleeping conditions, recreation, employment or school activities with the physical environment involved in each. In the school activities of the children, such

also given by correspondence to the other agencies interested and they in turn, keep us informed of the results of their social activity. It may be added that though this is our general policy, whenever emergencies arise, the medical social worker has access to any patient's home and is free to make any temporary arrangements which would be of benefit to the individual patient.

The case work with individual patients not known to other agencies is similar to medical social case work with any other group. It involves, of course, visiting in the homes to insure the carrying out of the physician's recommendations in relation to living conditions, limitation of responsibilities, convalescent care, change of occupation, vocational training or occupational work within the home, according to the individual problem. In the case of children, there is the problem of adjusting the living conditions to meet the requirements of limitation of exercise, the education of the mothers as to their responsibilities, recreational supervision and special school arrangements. These school adjustments include special arrangements in the public schools, the principals being very cooperative in excusing children from strenuous gymnastic exercises and in allowing them privileges in climbing and descending the stairs at their leisure. The individual grade teachers have also been interested in personally supervising the school lunches for cardiac children. Some of the schools have introduced facilities for serving a glass of milk or a bowl of soup with crackers to the children during the morning session. This provision has had a marked effect on many of the cardiac and malnourished children. The public school system of Chicago also includes three schools with facilities for caring for crippled children. A small number of the more seriously handicapped cardiacs have been admitted to these institutions. The Board of Education furnishes a "bus" to transport these children to and from school. While attending schools of this kind the children have definite rest periods during school hours and have their luncheons served at school. Furthermore they indulge in whatever exercise is allowed them under

the closest medical supervision. The school authorities, through the medium of the social worker in the clinic, are constantly in touch with the physician interested in the given child, gradually allowing more and more freedom until he is again able to return to the regular public school classes with the minor restrictions available there. The following is an example showing the value of such special provisions for cardiac children:

Sam A., a child of 10 years, was referred from the Michael Reese Hospital to Michael Reese Dispensary Cardiac Clinic in August, 1921 for medical supervision following a two month period of hospitalization. The diagnosis was pericarditis with effusion. Investigation by the social worker revealed a family of six children, ranging in age from 10 years to



Social worker taking first interview with referred patient.

22 years. This family lived in a six room flat in an uncrowded neighborhood. The rooms were of medium size, light and airy. The mother was unusually intelligent and cooperative in her care of the boy. Admission to one of the special schools mentioned above was secured for Sam. He reported regularly to the cardiac clinic throughout the school year. In July, 1922, he was given a six week's outing at a cardiac camp. In addition to the vacation in the open country which this afforded, Sam also had the benefit of restricted exercise as advised by his own physician through the cooperation of the camp authorities. When he returned to clinic following this summer outing, his condition was markedly improved. In September, 1922, he returned to the special school and continued his periodic visits to the cardiac clinic. Improvement was noted chiefly in that his temperature and pulse rate were decidedly lower and his general condition was apparently normal over a longer consecutive period than previously. By December, 1922, his condition was sufficiently improved to warrant the tonsillectomy he had long

needed. Arrangements were made for this operation at Michael Reese Hospital where the child could remain as long as necessary following the operation. At the end of January, 1923, the physician advised that Sam could be discharged from the special school to the regular public school with limited exercises. This transfer was made and to date the patient has made good progress.

Training the Handicapped

In planning for vocational training for the older children and for the handicapped young people the Scholarship Association, the Board of Education and the State Rehabilitation Commission have proved helpful resources. The Scholarship Association provides scholarships for Jewish children over fourteen years of age who cannot otherwise continue in school. They are usually awarded to children who are physically handicapped or who give promise of special ability, both of which conditions suggest the advisability of further training. This scholarship in addition to allowing the child his school supplies and other incidental expenses, pays the family a sum which approximates the wages of the child were he at work. The Vocational Guidance Department of the Board of Education is particularly helpful in advising the young boys and girls who are leaving school or who seek part time employment outside of school

hours as to openings compatible with their physical endurance. In January, 1923, this Bureau opened a department for the particular study and placement in industry of young girls suffering from definite cardiac difficulty. The state rehabilitation commission has a state and federal fund which is entirely for the use of the re-education of physically handicapped individuals who are amenable to some form of training. Through this fund a seventeen year old boy with a severe cardiac lesion has recently been provided with a complete outfit of tools preliminary to training and apprenticeship in watch repair work. In addition, the tuition necessary for this patient's instruction was supplied from the same fund.

As to occupational work for the smaller children at home, some of them have continued with the reed basketry—(Continued on page 838)

The Detection and Prevention of Typhoid Epidemics*

Slow to Develop, Difficult to Detect, B. Typhosis Still Takes its Toll. Successful Prevention Achieved Through Sanitary Safeguard Rather than Artificial Immunity.

By J. FREDERICK JACKSON, DIRECTOR, BUREAU OF SANITARY ENGINEERING, DEPARTMENT OF HEALTH, HARTFORD, CONN.

MANY years ago, "a sneaking, vicious, elusive criminal made his appearance in the world and for a long time poisoned many people, causing untold suffering and sickness and many deaths. So sinister and various were his methods of attack that it was a long time before suspicion was directed to him, and many wearisome years of misdirected investigation elapsed before he was definitely identified as the author of outbreaks and epidemics devastating in extent, but previously attributed to unpreventable bodily ills to which the human race was naturally liable.

He was most insidious in selecting and approaching his victims, and because the effect of his attack was slow in developing, when an investigation was started detection was very difficult, most of the evidence having disappeared or having been destroyed.

His operations finally became so widespread and his attacks so bold and deadly that systematic efforts were made to protect his victims.

These soon developed some interesting facts, one of which was that he was harmless unless he could establish himself within the body of his victim. This he generally sought to do by concealing himself in such a manner or in such media that his presence was entirely unsuspected, making him unconsciously assist in his own destruction. A favorite way was to conceal himself in the food

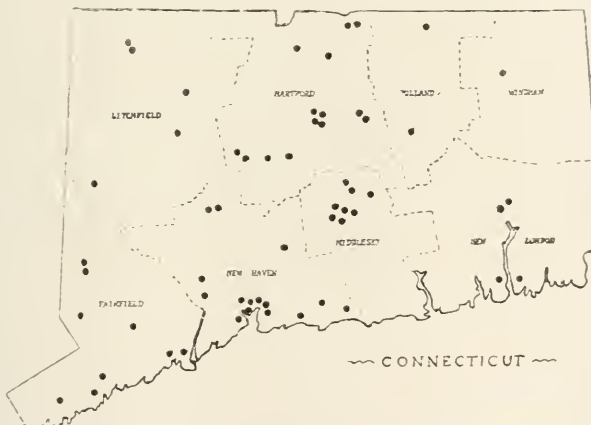
or drink, or in matter which none too clean persons touched with their hands. Sometimes when other means failed, he made use of insects to reach the food and drink of his victims.

Difficulty of identification and lapse of time before the effects of his presence were felt made his method of attack hard to predict. It was also difficult to secure any reliable traces once he had been successful in reach-

ing a victim. The evidence for prosecution and conviction in most cases was lamentably weak, and society for self protection had to adopt general safeguards. This notorious criminal is the typhoid germ *B. typhosus* and its unchecked career was unquestionably due to lack of care in disposing of the wastes from the human body.

The methods of general protection at first tried were to prevent drinking water and shellfish from becoming contaminated, afterwards they were extended to protecting milk and other food products. The effect of these efforts was a marked decrease in the typhoid rate and the campaign was further extended to making contaminated water, milk, and other food products safe by filtration, sterilization or by pasteurization. Efforts were also made to develop immunity within the body of the victims by the general application of anti-typhoid inoculation. As a result, the progress in these fields has been most marked and the consequent drop in morbidity and mortality rates from this scourge most gratifying. It must be admitted, however, that the advance in detecting and eliminating the particular source from which epidemics arise has not kept pace with other preventive measures. Since the end sought is the positive stamping out of this disease and since this result will be more quickly obtained if efforts are directed at the source and before it has gotten a foothold, a review of the more important outbreaks in Connecticut so far as the records

are available is of interest. The four charts making up this epidemiological study have been abstracted from the reports of the State Department of Health from 1880 to 1918. They are grouped chronologically, giving the location, number, medium of infection, and the source where it was definitely determined. The distribution by counties and towns is not very informative. New Haven in New Haven County, and Middletown in Middlesex, appear to have suffered most, and outbreaks in general are along the coast and large rivers. Very little significance can



Spot map of Connecticut showing where occurred the epidemics studied. Outbreaks in general have been along the coast and on large rivers. Thirty-four per cent of outbreaks were attributed to drinking water.

*Read before the joint meeting of Water Works Officials and Connecticut Public Health Officials, Hartford, Conn., April 18, 1923.

Date	Location	Cases	Deaths	Medium by which infection was caused	Vehicle by which bacteria were conveyed	Determination of Source	Remarks
July-Dec. 1880	Manchester	63	15	Food	Fingers	Negative	Swath factory (laid on immigrant ship. All handled seasons in silk factory. Open sewer in rear of houses.
August 1882	Portland	60	11	Water	well 25 from Privy	Negative	Colony immigrants lately arrived. Open back privy.
1883	Guilford	6		Air	well from ceto pool 6 feet	"	Poor connection. Sink drain permitting food to be kitchen.
1883	Waterbury			Water	Cesspool	"	Attributed Soil Saturation.
Feb-Mar 1884	Middletown	7		Water	well 30 from source	"	washed. Permitted kitchen Slops used as Fertilizer to get into well.
August 1885	Middletown	16	1	Unknown	Unknown	"	No connection with water, milk or food detected.
Aug-Oct 1891	Stony Green	21	1	Water	Cashin from sand on rocks	Positive	Employee defecated on rocky ground. Was walking case. Infected cistern.
July Sept 1894	Stafford	21		Unknown	well 50 from Privy	Negative	Analyses and test did not show well as source.
October 1894	Middletown (Western College)	23	4	Food	Pratt's Beer 300 from Oyster Bea	Positive	House had 2 cases of Typhoid.
November 1894	New Haven	6		Food	Raw Oysters	Negative	Water, ice cream and celery eliminated.
April 1895	New Milford	20		Milk	Typhoid carrier on farm used privy or defecated in ground.	Positive	Typhoid carrier on farm used privy or defecated in ground.
Apr-May 1895	Stamford	386	26	Water	well 25 from Privy	Negative	Milk cans rinsed in well water. No conclusive evidence.

Date	Location	Cases	Deaths	Medium by which infection was caused	Vehicle by which bacteria were conveyed	Determination of Source	Remarks
July-Sept 1895	Danbury	41		Water	Disconnection	Negative	
1895	Easton	1		Unknown	Unknown	Negative	
Mar-May 1900	Forestville	48		Water	Faces from Milk water drinking	Positive	Submerged pipe line broken about Mar 31. By fresh Down outlet from factory about 300 above.
Sept 1894-July 1900	Do Norwalk	10		Water	Sewage	Negative	Discharge for sewer in Conn. Ave. formed fissures in pit through which sewage from sewer reached spring.
1901	Manchester	6		Unknown	Unknown	"	Attributed to garbage of privies in back yards. 60 cases last year before these were cleaned.
1901	Middletown	15		Food	Unknown	"	Hospital for insane. Probably brought in by visitors.
Apr-June 1901	New Haven	441	59	Water	Sewage	Positive	Privy open vault precipitous slope to brook, ground frozen, excreta thrown on surface. Heavy rain 18 days preceding outbreak, washed into reservoir.
Sept 1900-Nov 1901	Ridgefield	18		Water	Unknown	Negative	Attributed to wells, contaminated by cesspools.
Feb-Apr 1903	Bristol	84		Milk	Milk cans	"	Slops thrown on manure pile. Washed into spring used for rinsing cans.
February 1904	Waterbury	4		Water	Common drinking cups	"	Cups contaminated by men using toilets or shavings by leakage from houses on hillside above.
Oct-Nov 1904	New Haven	20		Food	Flies	Positive	Food exposed to flies. Open filth pits in dwellings adjoining. Typhoid at this place August & September.
Sept-Oct 1904	Canaan	15		Food	Flies	Negative	Cesspool and privy vaults in poor condition.
August 1905	New Haven	28	1	Milk	"	Unknown	"
1906	Canaan	3		Food	Flies	"	Probably ice from Blackberry River.

Date	Location	Cases	Deaths	Medium by which infection was caused	Vehicle by which bacteria were conveyed	Determination of Source	Remarks
August 1906	New Haven	37	4	Food	Fingers	Negative	Immature axes from almshouse on street contracted it and infected food.
July 1907	Danbury	12		Milk	Making case of Typhoid	Positive	9 cases took milk from same dealer who later came down with typhoid fever.
Aug-Sept 1907	Ansonia	33	4	Water	Unknown	Negative	Analyses of Spring in dry good, well poor.
August 1909	Woodmont	18	1	Milk	Bottles	"	One milk dealer sent ill with malaria. Bottles washed in kitchen. Privy in yard.
1909	New Britain	100		Water	Unknown	Positive	4 out of 81 wells analysed showed contamination when these were discontaminated. Case stopped in 1 month.
Apr-May 1911	Bridgeport	8	0	Food	Clams	"	All cases had eaten clams from same dealer.
Sept-Dec 1911	Torrington	329	35	Water	Unknown	Negative	While analyses of supply showed contamination, source of it was not determined.
Sept 1913-Nov 1914	Seymour	9		Food	Flies	"	Condition of kennels and stables very bad.
September 1914	Hartford	12		Milk	Carrier	Positive	Employee or dairy who helped with milking often found to be carrier.
November 1914	Hartford	34		Milk	Carrier	Positive	"
January 1918	Middletown	8		Food	Ice cream	"	Black tests and traces of colored chest pasteur.
July 1918	Litchfield	3		Water	Sewage	Negative	Drain pipe broken where it passed under corrugated lead pipe leading to septic tank.
August 1918	Andover	1				"	Wells of Summer boarding house had been discontaminated for 10 years. While tests were negative.
July-Sept 1918	Wallingford	18		Food	Ice Cream	"	Black tests and with of milk negative. After sale of ice cream was prohibited cases ceased.

be attached to this, due to the difference in method of reporting and investigating.

Seasonal variations are not distinctive enough to warrant drawing any conclusions. Apparently the major outbreaks occurred in the summer and fall months, August with 11, September with 14, and November with 10, having the larger number; though of the most intensive outbreaks, that at Stamford was in April and May, and the one at New Haven in April and June.

Thirty-four per cent of the outbreaks were attributed to drinking water, 16 per cent to milk, 36 per cent to infected food and 18 per cent to unknown causes.

The vehicle by which infection was conveyed was:

Drinking Water.....	8
Fingers	12
Flies	4
Milk Cans or Bottles.....	6
Common Drinking Cup.....	1
Contaminated Air.....	1
Unknown	14

Positive determination of the source of the infection was made in only 24 per cent of the outbreaks.

After considering this record, one cannot but be impressed with the large number of cases where the source of infection was not determined.

This cannot be attributed entirely to lack of personnel or thoroughness of investigation, for in New York City, where these should be ample if anywhere, in 1921, of 899 cases verified, the probable mode of infection was traced in only 40 per cent.

The question then naturally arises whether it were not better to acknowledge that positive determination is not possible with the present methods of investigation and either improve them, or abandon this line of investigation and devote our entire time and moneys to extending and improving methods of prevention which have proved successful.

Discussion: In discussing the above paper J. Doman, assistant sanitary engineer of the Connecticut State Department of Health, presented some interesting figures based on a comparison of the typhoid morbidity rates of various groups of towns in the state. The figures were for a four-year period and related to five regions chosen with reference to the amount of vacationing in the regions.

The first three regions, representing a combined population of about four hundred ninety-two thousand, had an annual morbidity rate per 100,000 of 19.35 or 61.2 per cent of the state average—(Continued on page 840)

How to Meet the Problem of the Delicate Child*

We Strike at the Roots of Physical Unfitness When We Begin the Teaching of Food to all Children, Whether They Are Undernourished or Not

By MARY SWARTZ ROSE, PROFESSOR OF NUTRITION, TEACHERS COLLEGE, COLUMBIA UNIVERSITY, NEW YORK CITY.

WE believe that there would be more happiness if there were more health. We also believe that there would be more wealth if there were more health, and with more wealth there should be still better health and consequently more happiness. It is a beneficent instead of a vicious cycle!

The author's experience with the delicate child as a public health problem practically dates from the organization of a little nutrition center in the vicinity of Columbia University, through which a group of us aimed to make available to the neighborhood the knowledge of better living and at the same time give Teachers College students an opportunity to learn how to serve a community most efficiently.

We organized some nutrition classes, of course, to study the problem of teaching nutrition to children. Circumstances soon so shaped themselves that we entered the big public school in the neighborhood (from which our children had been drawn); in cooperation with others and with the financial support of the New York County Chapter of the American Red Cross we organized nutrition classes in the various grades, between three and four hundred children being gathered into twelve or fifteen small classes. These children were selected with the assistance of the school physician, and were by him re-examined from time to time. We weighed the children weekly because we believe that systematic weight records help to an understanding of a child's health progress, because they interest the children in their own health, and, generally, interest also the parents. We made no special feature of single gains or losses in weight because we believe these are apt to be misleading and defeat the main object of our work. That such has been the case sometimes is indicated by this statement which I read the other day:

The health director feels that there has been altogether too much weighing and measuring in the schools and little has been accomplished as a result. The weighing and measuring has created a great deal of worry on the part of many parents [perhaps they should worry!] and the director would suggest that this practice be discontinued.

This is apparently a rebound from weighing unsupported by a proper educational program, which is always of doubtful value, useful as it is when properly incorporated in such a program.

Food Lessons Useful.

We gave the children weekly food lessons because we believe that this is one of the most practical attacks upon the general problem of nutrition. Malnutrition is a term generally used to describe the state of being below par when there is no specific disease. Weight is affected by numerous factors which may put a child physically below par, and because attention to diet does not immediately cause every child to gain, many are inclined to think that food has little to do with the undernutrition of children. This is because dietary factors operate slowly and their influence extends from one generation to the next in a very subtle way. According to several recent surveys, the major cause of absence from school is respiratory diseases. Nobody connects these with nutrition. But one does not have to work with experimental animals long to realize how greatly resistance to all sorts of infections is modified by a persistently poor diet. Our rats get into a state that makes me think over and over again of "snuffles" in children.

Some interesting new light is being thrown upon this increased susceptibility through the study of rickets. This is a disease which predisposes to respiratory affections. We know of two dietary measures which are preventive—cod liver oil and a suitable calcium-phosphorus ratio. The former

is easier to control than the latter. We produce rickets in animals at will on a diet low in phosphorus. But Dr. Hess discovered strains which did not respond with 100 per cent rickets like the others, and the explanation was found in the diet of the mother. It seems a long way from the diet of the mother to the colds of a child in school, but the matter will bear further investigation.

We know that the teeth of the child are practically determined before birth and shortly thereafter, and that a suitable diet is the most significant factor in good tooth production and maintenance. We know, too, the significance of the diet in regard to the control of goiter in school children, even though we find at the present time administration of medicinal iodine the best way to protect against this disturbance in goitrous regions.

For these and many other reasons, it seems that we strike at one of the roots of physical unfitness when we begin the teaching of food to all the children, regardless of whether they are undernourished or not. If we cannot at once take care of all the children, we are perhaps justified in beginning first with the less fit though I am not sure that the safeguarding of the fit for the future is not really more important. It is on this principle that we are giving food lessons now to an entire class instead of segregating the less fit for instruction. The less fit should have attention, but it needs to be more individualized. Some special classes for these children—a few of them—may always be needed.

No immediate striking gains in weight are to be expected from such teaching. Until we have carried some children through the whole elementary school it will be hard to evaluate this work. In the school of which I am speaking the teachers have come to believe in us, and want our lessons for their children. They say the children are better cared for by their mothers and the children certainly look better and behave differently. This year the

*Presented at the Massachusetts Public Health Conference, Springfield, Mass., April 28, 1923.

support for our special workers was unfortunately withdrawn and we have been able to have only the food lessons for the lower grades in the weekly hygiene period, supplemented by monthly weighing of the children. We are trying to make the little children understand that there are good reasons for a systematic and controlled diet, presenting in the lessons very small portions of the food which we talk about for each child to sample as well as discussing its relation to health and growth. The path in this sort of teaching is unblazed and we are giving it a great deal of time and thought and are going to visit the mothers and try to discover whether any of it is reaching the homes.

That something may be done for the actually unfit child through such methods is shown in reports that come in from home economics extension workers all over the country. These women are so far the best equipped as a class to deal with the educational side of the nutrition problem. One reports a county with 2,868 children 7 per cent or more underweight in which 620 were brought up to normal in nutrition classes.

Many attempts to eradicate undernutrition have been made through actual feeding of the children. This brings quick results in many cases. For two summers we cooperated with the summer play schools of the Federation for Child Study (until they got a nutrition supervisor of their own), conducting classes among the underweight children. These children were given a noon meal at the school daily, and the majority of the children, coming from very poor and generally ignorant homes, showed improvement chiefly to be attributed to the food served at the school. Our main function was to stimulate the children to eat the food, which they often did not like because they were untrained in eating habits and unaccustomed to the foods provided. One little girl said of a lettuce sandwich that she would eat the bread but not the flower. It took hard work to induce them to eat crusty rolls instead of soft bread, and to accept other innovations for their physical good, but as they did eat the food they made improvement.

Milk feeding in the schools is of the same nature as the school lunch. It ought to bring results where the children's diet has been inadequate in almost any way, and it brings results quickly in many cases. I think of the report, of one county, where the extension worker fed 551 children and 256 of them were brought up to nor-

mal weight by this simple procedure. We have no way of knowing yet how school feeding unsupported by education will eventuate as compared with an educational program unsupported by feeding, or how much more permanent the results from a combination may be. In rural schools the hot school lunch is an undoubted advantage to the children physically and it affords rich educational opportunities.

It seems to me that if money is going into any kind of a feeding plan, it would be much better spent if made a part of an educational program. I should be inclined to limit milk feeding as a general thing to the kindergarten and primary grades where one extra meal may be an advantage to every child and not to introduce it into those grades where the children can very well stand a three-meal-a-day program. Eventually they must learn to get their food at home and to select it more or less for themselves. In the early years there is a gain from having a staple like milk in school where the habit of liking it may be helped along by the group influence. In evaluating the milk feeding, we do well to remember that good diets for children under seven have about 40 per cent of their calories in the form of milk, and at no time during school life should the calories from milk drop much below 25 per cent. We must also remember that the underweight child often needs an extra meal which he can get only if furnished at school.

The majority of school children will grow if they have any sort of a chance. The underweights will fall into five classes:

- (1) Those who are naturally smaller than the average, but normal.
- (2) Those who are handicapped by some obvious remediable defect in their mode of life, such as lack of adequate rest or a persistently poor dietary program.
- (3) Those who are handicapped by some remediable physical defect, such as bad posture, bad tonsils and adenoids, defective eyes or feet, sequelae of disease.
- (4) Those who have some obscure physical handicap, as undetected chronic disease, such as tuberculosis or obscure physical defects.
- (5) Those who are congenitally weak.

The fourth group is the one the physician thinks most about in connection with malnutrition, and rightly. This class must have his help. It is not economical nor sensible to begin a health program without provision for a physical examination of the children, preferably all the children; where this is impossible the next best thing is to take the children who deviate

markedly from our best weight norms. We are quite likely to include in the net of 10 per cent underweight the ones in need of medical inspection. The physician must then sort out the ones who are not likely to respond successfully to any ordinary feeding or educational program, and to indicate what the line of attack on each individual child problem must be. For many it is the remedying of physical defects. These can generally be turned over to the nurse for follow up work. Often it is a combination of these things and bad health habits, so that if the child can at the same time have the benefit of an educational program so much the better.

The Congenitally Weak.

In the fifth and last class I put the child who is just "delicate," having a smaller vital spark than his companions, and needing scrupulous care for many years till he learns to take care of himself in such a way as to be well even though he may never be strong. To distinguish this child from the one who seems delicate but has some hidden remediable handicap is the severest demand we make upon the physician. Sometimes all the resources of a modern city hospital will be needed to detect the fundamental difficulty. But neither the naturally delicate child nor the one who has some obscure handicap will respond to simple feeding or education. These are the children who make some physicians say the delicate child is a sick child. By wise care there is always the hope that these children may in time outgrow their handicaps. Theodore Roosevelt is the shining example. But think of his driving ambition and of the wise father with every material resource who stood behind the puny child for years!

Far more hopeful is the educational work with the children who are not seriously handicapped. Health work for them is going to pay on a grand scale, if it can really establish habits. This is a hard thing for the school to do. One way to reinforce school instruction and school feeding is through cooperation of parents. But parents know even less than teachers about nutrition. We must so far as possible get hold of them and give them some "convictions" about their children's food. In one school lunchroom where they are trying to guide the children's choice, a child was refused more than one portion of Welsh rarebit unless she had permission from home to have more. The next day came the note from the mother:—(Continued on page 813)

The Camera and the Health Officer

A Screen Presentation of Insanitary Conditions Bears No Denial and Commands No Approval. The Photographic Witness is an Aid No Health Officer Can Well Ignore.

By C. V. CRASTER, M.D., D.P.H., HEALTH OFFICER, NEWARK, N. J.

IF we were asked to estimate in some way the value of the service rendered by the camera in the everyday life of the people there is no doubt that the part played by the "all seeing eye" in the administration of public health both by public and private agencies would be found to be of enormous influence. The old woodcuts so successfully employed in earlier days were, of course, crude affairs as compared with the artistic products of modern photography, but the lessons to be conveyed and the illustrations pressed upon the mind are inherently the same. The art of the old masters was far outdone by the improvements of photography, but the guiding principles by which direct and social benefits should arise

the truthful interpretation of the actual picture to be presented is a community asset whose value cannot be estimated.

Public health and the art of the camera have, so to speak, grown up together and if we further extend this dual growth to the development of the compound lens which was fostered by the demands of photography we can well see how closely it was related to the science of bacteriology upon which fundamentally our modern public health principles are built

the camera to the health officer there are certain kinds of inspection service in which very remarkable and striking results are possible. This does not, of course, include the almost limitless field of the motion picture. Particularly in field inspection service upon farms and dairies has the camera been of effective service. Photographs of this type have been surprisingly valuable. The pictures of unsanitary conditions around farm buildings seem to lend themselves to remarkable reproduction, seldom requiring an accompanying description.

The eye naturally looks for "spotless town" pictures of a dairy farm so that the shock is vivid and lasting when cow barns and yards are pictured as filled with mounds of



A slaughter house declared a nuisance because of undesirable noises and odors. Located in a populous section. Picture of antiquated buildings and insanitary surroundings led to its renovation.

and upon which they are maintained.

In no other municipal administrative function is there so much need of graphic representation of existing conditions necessary as in the case of public health. The oft-quoted question in inspection service of any kind is: "Were the conditions described really existing at the time of inspection, or is there not some material exaggeration in the report which does not faithfully represent the existing condition?" The reply is that the camera will show what the situation is and will actually convey a clearer picture than the eye remembers. The value of all photographs will depend upon how far the picture can reproduce existing conditions or whether it can delineate normal from abnormal states. The camera will sometimes, however, put an entirely different aspect upon an apparently clear cut picture of a violation of the law so that its public health value is negligible. In the many fields of usefulness of

manure, standing pools of sewage or rain water and the smeared and spotted walls and doors of dilapidated buildings. In this work nothing is so effective as the "before" and "after" pictures, in some instances the change is so startling as to test the credulity of the observer. Many of the dairy pictures show conditions upon farms nearly past belief. Here is a new barn unprovided with windows or any means of ventilation except by the doors which, of course, are closed in cold weather. It was naturally a simple matter to require large windows to be put in for light and a ventilating cowl on the roof. Almost an endless variety of insanitary conditions can be found upon the unsupervised dairy farm. The low type of house of the poor milk raiser is always a problem and at times the cows are better housed than the dairyman's family. In one of these places the whole dairyman's family was found infected with typhoid fever. In another

always will remain the same. It was found to be true of photography as of the work of the old craftsmen themselves that the simple and easily learned lessons could be demonstrated and illustrated by pictures which did not require to borrow from the grotesque or absurd to drive home a lesson. "Science," says Ruskin, "does its duty not in telling us the causes of spots in the sun, but in explaining to us the laws of our own life and the consequences of their violation. Art does its duty, not in filling monster galleries with frivolous or dreadful or indecent pictures, but in completing the comforts and refining the pleasures of daily occurrence and familiar service."

In this respect the camera may be said to "fill the bill" and to give that public service which no other art has so far approached in such full measure, in making life more cheerful, existence more endurable and health more permanent. This usefulness and



Litter in street and exposed meat on sidewalk in violation of sanitary code.

the house and dairy were in the same building with one member of the family suffering from the same ailment. The commonest form of insanitary condition found around barns was enormous accumulations of manure, undrained barnyards with pools of sewage or standing rain water. Photography brought out clearly the manure bespattered flanks of unclean cows used for milk production, the dirty hands and clothing of the hired help. The general results of good pictures of this type will create a more permanent effect than any plain statement of the undesirable conditions found.

"Even the dog looks unhappy," said one little boy in an audience viewing a series of farm slides, and he was right. Where farm pictures are used for lantern slides or publicity it is necessary to use some judgment in selection for an accumulation of horrors will tend to create indifference or even levity in the observer. "The worst of the dairy inspector," said one farmer, "is that he ain't got no sense of humor or he would have left us our old barns for us to laugh at."

In general sanitary administration the camera is an invaluable aid to the inspector in his work of marking down nuisances and violations of the sanitary code upon public and private property. Pictures illustrate this article in which a public abattoir became a community nuisance. The slaughterhouse had existed upon the location for a number of years in a crowded tenement and apartment neighborhood. It had been tolerated by its neighbors in spite of the bad condi-

and noises to be complained of continually. The photos very clearly show the ramshackle condition of the premises, and are sufficiently graphic as to conjure up all the other conditions complained of. The evidence of



A dairy barn showing conditions that were tolerated before the adoption in Newark, N. J., of the milk ordinance.

the pictures alone was sufficient to condemn this slaughterhouse so that the licensing body refused to renew the license, thus putting an end to an obvious plague spot. The city zoning law would, of course, have prevented the establishment of a new business in such a locality, but it is not retroactive and cannot automatically exclude existing business.

In clean-up campaigns the camera can convey very useful lessons of conditions found in back yards and lots. A good picture of such a place with the

caption: "Does your back yard look like this?" makes a most useful circular or poster for clean-up purposes.

Very effective indeed is the aid of the camera in depicting violations of the sanitary code in old buildings, defective and worn out storm leaders and gutters, sagging roofs and accumulations of waste water and mosquito breeding pools. All these seem to lend themselves to exact and clear portrayal. Many such photographs have been taken for production in court and have seldom failed to win drastic action to abate the condition shown. It is seldom, however, that an owner will refuse to clean up a yard or vacant lot when confronted with such evidence. In this regard one of our most constant offenders, the yard toilet or privy vault can be adequately handled by a good photo. Accumulations of rubbish and refuse in back yards are conditions easily remedied and although no direct health menace can be proved the unsightliness alone goes far as a powerful argument for removal.

Striking pictures have been obtained of unsightly conditions upon city sidewalks, especially where evidence has been desired of the exposure of foods in violation of the city ordinances. Some of the best examples of how the camera can demonstrate insanitary conditions are those in food stores and markets. The use of old buildings badly adapted for the clean handling of food is very frequently found in routine inspection. Such places spring up like mushroom growths over night with a coat of paint and an attractive menu upon the window but will seldom in-



Concrete evidence of reconstruction and general cleanup effected in same dairy shown in picture above.

dicade just what the kitchen is like. In one such instance illustrated the whole front of an old building had been ripped out to enable food to be sold on the sidewalk, which was itself a violation of the law. The kitchen of this restaurant was everything that such a place should not be. Old and scaling walls, rotten woodwork and floors loaded with roaches and other vermin made these premises impossible for use in the handling of foodstuffs.

It does not require any health training to see what is wrong with most pictures taken of the insanitary chicken markets, but one does find it difficult to convey to the observer the varied and intense odors present in such places; this unfortunately or fortunately, the camera cannot reproduce for us.

In one instance there was a vast accumulation of oyster shells upon a vacant lot in the vicinity of a lime burning furnace, the shells being used for the production of lime. The cause of complaint in this case was the stench arising from the decomposing animal matter upon the shells themselves. It required a photograph to convince the court that a nuisance existed. The camera does not always produce a picture of diseased meat sufficiently distinctive as to alarm the public from the cursory glance at the picture. Occasionally, however, a tuberculous carcass is seen so loaded with "perl such" or tuberculous nodules as to be clearly diseased to



Shows very clearly how tenement conditions can safely be condemned on the evidence of the camera.

the least informed of minds. In the carcass illustrated of a case of disseminated tuberculosis in a cow it is interesting to know that this reactor looked apparently healthy and had been giving raw milk for public consumption to within a few days of slaughter.

Among animal diseases cattle affected with foot and mouth disease afford very characteristic pictures. The foaming lips and the appearance of the animal standing on its tiptoes, due to ulceration around the hoof, are clearly seen in most pictures of this ailment. It is not always realized that good photographs can be taken of fumes and yet nitric oxide gas was very visible the day a picture was taken. These fumes were the result of certain war activities and caused a number of cases of unexplained poisoning. The company did not see the need for building adequate absorption chambers until court action was taken and forcible closing of the plant ensued until the necessary apparatus was installed.

The faithfulness with which the camera will decide where insanitary conditions exist is well shown in pictures. A particularly insanitary pool with the walls and steps in bad repair, with broken and chipped cement impossible to clean appeared in startling clearness in the photo taken which was directly responsible for the closing of this pool. A

good type of bath showing equally clearly illustrating the cleansable walls and floor of white tile, giving altogether a better appearance than the broken cement presented the other side of the picture and resulted in reform in this particular instance.

It is sometimes difficult to obtain a good picture of a small and ill lighted room, such pictures, of course, only being possible by flashlight. However, the brilliant light necessary will sometimes bring out into relief the main features of lack of space and overcrowding. Certainly the rooms represented in the accompanying picture are insanitary and unsuitable for living quarters and offer the best possible evidence of abuse of housing conditions. Pictures such as this have resulted with us in completely transformed living quarters.

It is hard to imagine what could take the place of the camera in depicting so clearly and accurately the actual conditions sought to be determined. The range of value of the camera is, of course, limited in certain ways but its usefulness as a graphic witness in nearly every branch of public health renders it well nigh indispensable to the Health Officer. It is probable that the moving picture will displace to some degree the present photograph especially in health publicity and school education for the public is becoming more and more dependent upon the "movie" for much of its everyday instruction and impression. For ordinary health administration, however, the photograph will remain a sure and certain aid to the inspector and the officer who requires evidence that no opposing testimony can refute.



Carcass of cow exhibiting advanced tuberculosis. The animal was a tuberculin reactor and had been milked up to a few days before slaughter.

Clothing and Health*

"Adequate Endowment for the Scientific Study of Human Raiment Is a Public Need—a Need Not As Yet Widely Realized"

BY LOUISE PHILLIPS GLANTON, DEPARTMENT OF CLOTHING AND TEXTILES, KANSAS STATE AGRICULTURE COLLEGE, MANHATTAN, KANSAS.

NOT many years ago, people, even doctors, and especially ministers, thought that the only function of food was to prevent starvation. Every one wanted to know "how low you could throttle down on high." The lower the grade of gas you could use, the better for you. True, some people flooded the carburetor and were accordingly out of order. Otherwise all maladjustments were the direct dispensations of Providence. In those days disease could not possibly be the result of faulty diet. Now everybody is expert at counting calories, and the various constituents of food stuffs have severally each its recognized influence on health.

For years a similar attitude was maintained with regard to clothing, which could harm only your morals, your pocketbook, or your husband's disposition. If you insisted on suitable clothes, you were doomed to bankruptcy in this world, and fire and brimstone in the next. No one thought for a moment that what you wore on the outside of your body affected in the least the inside workings of that body, except in the case of the temperature.

Now the light is coming! Dr. Woods Hutchinson says, "The chief quarrel which hygiene has with clothing is that there is too much of it—that garments come down too far, are too tight, too heavy, too hot. We do easily four times as much harm to our health by overloading ourselves with clothing and by overindulging

ourselves in the luxury of warmth, as we do by simply pressing the body at some single point like the waist line or the ball of the foot."

About fifty years ago, all the doctors and other learned folk began to suspect that constrictions of the body might have some hygienic significance. Corsets were therefore held responsible for all permanent displacements and maladjustments of the internal

The feet among civilized peoples are almost universally constricted in some way. Men have usually selected shoes wide enough but have neglected to insist on sufficient length. Colonel Munson of the United States Army says that when supporting the full weight of the body as in walking, the foot is at least an inch longer than when the body is seated. In

THE NATION'S HEALTH for June, 1923, Dr. Grossman shows x-ray pictures of a man's feet which are very badly misshapen by short shoes. Most cases of enlarged joints of the foot, bunions, corns, as well as ingrowing nails, and other malformations are directly the results of short shoes. This was not generally realized until the facts were brought out by shadow photography. Certainly Private Mulvaney was right when he said "a soldier on the march is no better than his feet."

It isn't so strange that men and women cramp their own feet and at the same time their style, but it does seem unforgivable that children's feet should be misshapen, maltreated. Shoes even comfortably long for growing children may in a few weeks become a menace to health and comfort, present and future. Pointed toes and narrow soles, while much to be deprecated, are not nearly so detrimental to health as restricted length and lack of ventilation. Patent leather is the most undesirable material for shoes. Dressed leather, suede, and fabrics of suitable kinds are named in the reverse order of their permeability of air.

Because the women of the past (and



Can one imagine a foot performing its full function encased in shoes like these? There is not a foot-shaped shoe in the entire lot.

organs in spite of the fact that such cases occur frequently among women who never saw a stay. "Society" women however went on compressing their waists until they found that the modern dances are quite impossible for a dancer tightly enclosed in stiff garments. Thus the corsetless vogue was inaugurated. Dressmakers now hang garments from the shoulders, or the hips where there are solid bones, not from the soft yielding waist.

*Read before the sixteenth annual conference of the American Home Economics Association, Chicago, July 30, 1925.

passing) generations, lacking economic independence, had to have a husband to produce the meal ticket, they followed the precedent set by the courtesans of France and wore high heeled shoes. It mattered not to the dear ladies that the demi-mondaine, if literature is to be believed, with one accord died young. Who shall say that the causes of many of the deaths were unconnected with the nervous strain due to maintaining an unnatural posture? Dr. Joel Goldthwait of the Harvard Medical College has cured a number of distressing disturbances of the alimentary tract by causing the patients to reassume natural postures through proper exercise and clothing. Zuntz and his associates in Berlin found that because of the increased muscular tension the maintenance of unnatural posture requires a measurable quantity of energy over that required to hold the body naturally. Various maladjustments of bones and muscles, especially at the ankle, are said to be due to the shifting of the weight caused by the change in the centre of gravity. Any garment which shifts the balance in any way is a disturber of nervous equilibrium.

Weight of clothing is another condition sedulously to be avoided, because of the added energy required to carry the burden and the consequent fatigue, physical and nervous. Beside the intrinsic weight of the fibre, of which linen is the heaviest in common use, texture is an important determining factor in weight. The more impervious to air, the greater the apparent weight of the fabric. Thus a well-napped blanket is less heavy than a closely woven unnapped fabric, when both occupy the same amount of space. Copeland says that one reason why silk is the most hygienic of fabrics is because it is the lightest in weight.

Lack of ventilation of the surface of the body has received some degree of attention from hygienists, among them Scherling, Aubert, Gerlach, and others. Kaposi quite definitely proves that a measurable amount of gaseous exchange takes place through the skin, which while only about one-half of one per cent of the total respiration,



Whatever the type of artificial support, the tendency is to weaken the musculature. While the lines of recent models approximate the natural contour of the body, it is far better to train the abdominal muscles to act as a corset than to encase the figure in constricting garments.

seems to be an exceedingly important function. Fourcalt varnished the surface of bodies of several animals. All of them sickened in a few hours, the results being cumulative. Several of them died with all the symptoms of suffocation. When the supply of

skin is comparatively small in amount but seems to be especially noxious if not evaporated. The most common way of preventing access of air to the surface of the body is by wearing many layers of fabrics more or less impervious to air, made into garments that fit closely and tend to restrict free movement of the air in contact with the body. Accordingly to Hutchinson, "The chest protector and the everlasting flannels are just as repugnant to an intelligent hygienic sense as they are to the 'sense in us for beauty,' and have done more harm to the species than any two beauty-born absurdities that can be mentioned."

In this connection the point may be made that low necked, short sleeved dresses are not the hazards that many would have us believe. The colds that are developed by the girls who wear evening dresses to dances are due either to the foul infected air of the ball room, to the fatigue from

the long hours habitually kept, or to a combination of the two. In their efforts to keep warm, men wrap themselves up like mummies in winter, because if they do not, they have been told they will take cold and die of pneumonia. Their sisters, their cousins, and their aunts fearlessly expose their wishbones to the wintry blasts, and wear silk stockings at Christmas



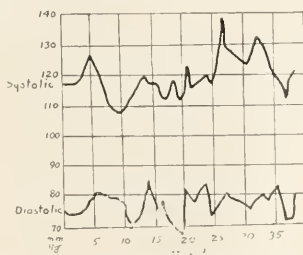
The human form divine lends very little grace to these monstrosities. Dress should at least be revealing enough to compel some attention to maintaining the integrity of the trunk muscles.

air is cut off from the surface of the human body, symptoms develop in every way similar to those manifested

time, and yet according to the United States Mortality Statistics for 1920, men died of pneumonia three times as often as women. In our college hospital last winter there were twelve patients with pneumonia and not a co-ed among them!

About twenty years ago Pflügge and his co-workers at the Institute of Hygiene in Breslau made a series of experiments which proved beyond the shadow of a doubt that nothing can make you dizzy, more nauseated, more exhausted than being too warm and damp from perspiration, with no movement of the air. This condition called "heat stagnation in the body" is responsible for many of the ills of life connected with the central nervous system, of which sunstroke is an extreme example.

The experiments of Pflügge are fully de-:—(Continued on Page 814)



Graph of the pressure in the brachial artery, measured by the cuff sphygmomanometer, showing how the mere memory of wearing an unbecoming, inappropriate dress produced an emotional upset in a young teacher.

by the varnished animals.

The amount of excreta from the

Ventilation of Department Stores

A System Which Provides Plenty of Fresh Air Without Drafts

BY A. M. FELDMAN, M.E., CONSULTING ENGINEER, NEW YORK CITY.

MANY department stores conduct frequent special sales on the first floor and in the basement. As a natural consequence these two floors are, as a rule, filled with crowds. Therefore it becomes an important problem to concentrate upon these in regard to a ventilating system.

The basements, as a rule, are windowless. Hence for their proper ventilation fresh air supply and exhaust systems should be provided in evenly balanced quantities. On the ground floors one has an additional vital fact to consider—the inrush of cold air through the entrance doors during the cold season which causes discomfort, especially to the sales force. On account of the drafts one observes in some instances, glass shields in front of the show cases which are situated near the entrances. An investigation would easily prove that this affords the clerks but an inadequate protection and that the sales people who work near the doors are all too often ill with colds, or other respiratory diseases.

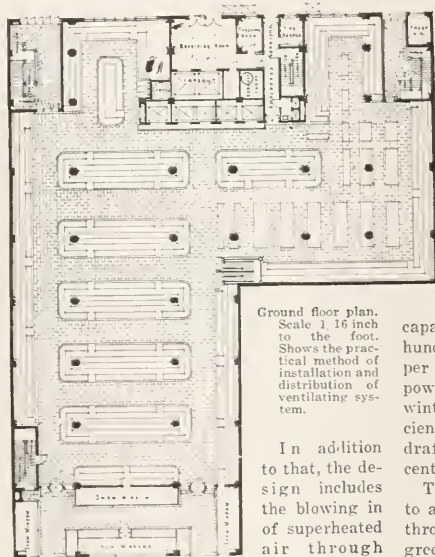
Entrances are, as a rule provided with vestibules. While these are heated there is always a rush of cold air into the stores resulting from the simultaneous opening of the outer and inner doors.

A practice has been developed by the writer, of designing the ventilating system for the ground floor of large department stores so as not only to provide an ample supply of fresh air, large enough for an unlimited number of customers and sales force, but also to eliminate all danger of such drafts as we have been discussing. Highly desirable results have been accomplished without the use of outer vestibule doors. The absence of these has added materially to the space surrounding the show windows, in consequence of which the prospective customers find added attraction in the window dresser's art.

The following is a technical description of the manner in which these results were obtained:

The ventilating system is so de-

signed that the fresh air supply is greater than the exhaust. More air is being delivered throughout the first floor than is taken out by the exhaust fan. The excess of air has to escape through the entrance doors, therefore when the latter are opened, the warm air from the store escapes, giving a warm greeting to the prospective customers. No drafts of cold air are rushing in on the sales force, who are thereby in a better physical condition to give full attention to the customers.



In addition to that, the design includes the blowing in of superheated air through registers in the ends of the counters, at the door, and also under the show windows just outside the entrance doors. Notwithstanding the absence of outside doors in the spaces between the show windows, the atmosphere around the entrance is kept comfortable warm and pleasant, thus inviting the street crowds to linger at the show windows, and adding to the probability of their entering the store to buy the things displayed.

This plan of ventilation has been successfully carried out in the Linder Department Store in Cleveland, and lately in the new Blumstein Department Store on 125th Street, between Seventh and Eighth Avenues, New

York City, both types of the highest development of such buildings.

The problem of the distribution of air in a store is a difficult one on account of the large open floor area. This was accomplished at the Blumstein Department Store in the following way:

Fresh air is taken from out-of-doors and warmed by passing over tempering and heating stacks and is discharged through a brick tunnel under the basement floor, then through two vertical galvanized iron risers, horizontal trunk lines and branches are distributed under the furred basement ceiling. Registers are evenly distributed over the entire ceiling and side walls for delivery of air to the basement, and branches are taken to first floor through vertical ducts around the walls behind the cases, discharging about 6 feet, 9 inches above the floor and through register panels in front of the show case bases.

The fresh air fan is of a capacity to deliver a maximum of one hundred thousand cubic feet of air per minute, requiring a fifty horse power motor to drive it. During the winter months it was found that sufficient air is delivered without causing drafts by running the fan at 70 per cent of its maximum speed.

The outdoor air is heated in winter to about 74 degrees F., and delivered through the registers at about 68 degrees F., which was found satisfactory for maintaining the temperature in the store at a uniform temperature around 70 degrees F. The temperature is maintained automatically by means of a thermostatic control system. Space has been provided between the tempering and heating stacks for the future installation of an air washer, which has been temporarily eliminated from the original plan.

In summer the fan is kept running at full speed, thus causing a pleasant current of air. The exhaust air duct work is distributed entirely through underground tunnel and branches under the basement floor and brought up through the floor in galvanized duct casings that are incorporated in the

counters, the tops of which are utilized for the display of goods.

The exhaust ducts for the first floor are carried up along the building columns and are incorporated in the fire-proof protection of the columns.

A brick shaft was built around the steel boiler stack, and as there was enough free area, the space was utilized for the exhaust air by connecting it to the tunnel. The exhaust fan was placed in the roof penthouse.

Thus the foul air is discharged above the roof of the building. The heat of the stack adds a great deal to the motive power of the exhausting effect over and above what the exhaust fan was designed to do.

Messrs. Robert D. Kohn and Charles Butler, New York, were the architects of the building and A. M. Feldman, consulting engineer for the mechanical and electrical equipment.

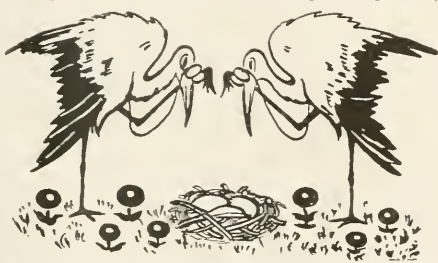
The Stork Adopts Installment Plan

IN order to enable prospective mothers in moderate circumstances to afford hospital care, the New York Nursery and Child's Hospital adopted a plan some two years ago, to lighten the financial burden of hospital confinement. Patients, already required to register several months before their babies are born, are by this plan, encouraged to pay for their hospital care on the installment plan. Prospective patients are thus enabled to pay for their care in advance of their confinement, and so be relieved of the massed expenses usually attended a visit of the stork.

The trouble with the usual installment plan is that payments are made after the service is rendered or the article in use, thus removing the chief incentive to thrift. The financial burden of childbirth was bad enough at pre-war prices. Today it is often catastrophic. The expense of caring for a baby after it is safely delivered is all that most families of moderate means can stand, without starting off with a lump charge of from one to several hundred dollars. And the birth of a child is something that most families want attended with dignity and independence. It is something for which they do not want charity or reduced rates. They want the best of skill and the most comfort their means will afford, and this Hospital has accommodations for all incomes, from surtaxable to invisible.

This provision is intended to spread the cost over several months and have it out of the way when the new baby's demands on the family exchequer begin. Experience with it has already shown that ward patients welcome it

as a means to paying their full way without breaking them, and private patients as a means of availing themselves of the security of hospital care at a pre-determined and prepaid expense. Seven dollars a month for seven months is not much of a burden for the ward patient, nor sixteen dollars a month for the private patient;



*Nursery and Child's Hospital, New York City, devises a partial payment scheme to enable mothers to pay for hospital care. It is so arranged that the hospital account is out of the way by the time the new baby's demands on the family exchequer begin.

and many use the plan to provide better accommodations than they could otherwise afford. The general plan is to divide the entire two weeks' charges into as many equal monthly installments as the date of registration permits.

If patients knew the added feeling of security that the doctor has when his patient is in the hands of a hospital and nursing staff ready at every moment of the day and night for all comers and every emergency, few would elect to try to turn a household bedroom into an operating room. If it were an appendix, now, they would not hesitate; but the trouble with an appendix is that you can not tell seven months ahead that it is going to require attention. That is why the advanced installment plan is adaptable only for a maternity hospital, and why the New York Nursery and Child's Hospital can make it possible for any mother to have the comfort and security of hospital

care at a smaller burden for her husband than if she remains at home, where domestic burdens are added to financial.

Hygiene of the Workshop

A recent radio broadcast under the auspices of the New York State Department dealt with the effect of proper sanitary conditions of the workshop in promoting the health of the worker and the consequent influence upon industrial production. The author, Dr. Leland E. Cofer, formerly health officer of the port of New York and now director of the division of industrial hygiene of the New York Department of Labor, defined the sanitary and insanitary workshop, as applied to nonhazardous trades and gave a popular discussion of the dangerous trades.

Dr. Cofer continued:

A satisfied man is less likely to leave his job than a dissatisfied man. The worker will be satisfied just in proportion to the effort made by his employer to make his surroundings favorable. The sick or tired worker reduces output and increases labor turnover while the healthy, satisfied worker increase production, advertises his employer and lowers the cost of turnover. Employer, Listen! Eliminate the unhygienic conditions in your plant! Furnish good ventilation, proper lighting, cleanliness and accident prevention devices! Refer your employees to a physician! Maintain an educational department, however small! Teach your people how to work! Teach them how to take care of their health! Teach them how to avoid accidents! Teach them by posters, by lectures and by personal talks! It will pay all around.

Now finally a word as to the responsibility of the worker. Remember, Mr. Employee, that all industry is becoming more and more specialized, and it is becoming more and more necessary that the individual worker be closely fitted into his part. It is frequently found that factors such as wages, social position or relatives at the same work influence a person more than anything else in choosing an occupation. The question of the suitability of the employment to the person's physique or temperament is too seldom considered. The employer is therefore applied to by persons who are ignorant of the requirements of the work and who are accepted simply on account of the necessity of the moment.

The workers, especially in dangerous trades owe it to themselves to get all the sleep and rest they can and to endeavor to keep themselves in the best possible physical condition.

About sixteen per cent of idiots are ambidextrous—a proportion far higher than found among normal people.—Church.

Rural Health Problems From the Massachusetts Viewpoint*

Health Problems, Rural or Urban, are Primarily Economic, Given a Satisfactory Basic Income, Standards of Living Improve

MASSACHUSETTS COLLEGE OF AGRICULTURE, AMHERST, MASS. BY JOHN D. WILLARD, DIRECTOR OF EXTENSION SERVICE,

IT may have occurred to you to wonder why this subject, "Leading Problems of Health Work From the Massachusetts Viewpoint," should be assigned to the director of extension service at an agricultural college, rather than to a medically trained specialist. It has occurred to me to wonder why; whether in my own person I am supposed to embody unusual experience of ill health, or good health, or both; whether it was because I have lived under as rural conditions as will be found in Massachusetts, and have seen them at their best and worst; or whether it is because my official relationship has afforded the opportunity for studying these conditions and coming to a layman's conclusions, with the usual degree of inaccuracy which laymen reach in passing on technical matters. Certain it is that anything which I may say is not to be construed as the technical opinion of one medically trained, but rather the impression of a lay student of rural affairs.

The nature of my work as Director of Extension obliges me to take different viewpoints on different occasions. In order to inform people concerning our rural opportunities and problems, it is sometimes wise to point out the differences between city and country; at other times it is necessary to emphasize similarities. Something of each process is necessary and desirable in this case. The people who dwell in cities, whether born there or elsewhere, are not vastly different from the people who dwell in the rural sections. This is true today, as never before, because of the free flow of population. I realize that

some anthropologist may challenge this by telling me that intensive inbreeding or, at least, line-breeding of rural sections has evolved physical types and mental types quite different from the composite type of the city. To him I would reply that while this was true twenty-five, fifty and one hundred years ago, it is much less true today because a considerable portion of city people were born in country

the human beings in the city?

It is in the artificial things that we note differences. Because of the intensity of problems in cities, much more has been done toward meeting them. The water supply, the milk supply, the sewage disposal, and even the conditions of housing are more or less rigidly supervised. Cities have been obliged to create facilities for meeting emergencies of individuals and families; as in the maintenance of both public and private hospitals, dispensaries and clinics. The number of organizations engaged in social service is legion. Witness the thickness of the volume which lists the charities of the city of Boston. Furthermore, the number of doctors within reach is adequate to meet the ordinary emergencies. But those of us who have lived in the country know what it means to be six to eight miles from a doctor and twenty miles from a hospital or a nurse.

Furthermore, the facilities for education and spread of information are vastly better in the city than in the country. The

Cannot Superimpose Health Conditions

TO INCULCATE a general and compelling desire for improvement of health conditions is the crux of health work. It is the people themselves who solve their health problems, under the guidance of experts.

Communal matters receive community action because the community feels the need. Other matters of home construction and personal habit and hygiene can never be successfully legislated or policed into existence; they will come only when the rank and file want them.

Districts and many of our present country families originated in the city. It is a commonplace to find that the majority of old families in a country town are no older than two generations in that particular town. It would be correct to draw a distinction between Massachusetts and central Vermont in this respect, for in central Vermont it is true that the Anglo-Saxon stock has persisted with much greater vigor and much less change than in Massachusetts. May we assume, therefore, that the human beings in the country, whose health we are considering, cannot be held to differ in any material respect from

daily press, the movie screen, the organized course in public schools, the billboard, the sermon, all reach numbers of people quickly and effectively. Furthermore, the people of cities are in constant unavoidable contact with their fellowmen and must as a matter of course, exchange a great deal of information (unfortunately, misinformation as well) concerning all matters, including health.

Another factor of quite considerable importance in cities is the opportunity for a balanced diet. Those of us who have lived thirteen miles from a railroad, as I have, will need no argument to convince us of the advantages of

*Read at the Massachusetts Public Health Conference, Springfield, Mass., April 27, 1923.

good vegetable markets and good fish markets. It is not merely a question of ability to provide variety in the diet, but of ease, convenience, and economy of so doing. Where supplies are available in profusion and at reasonable prices; where they are thrust upon us by the push cart vender, it is much easier to include variety in the diet than under conditions of the average isolated farm.

A definition of what we mean by "Rural" may well be called for. We cannot use the Federal definition which classes as rural all inhabitants of incorporated places with less than twenty-five hundred population; for in this Commonwealth it is the township that is incorporated, and there is very little separate incorporation of villages except as fire and water districts. No distinction is made by the census on the basis of occupation or mode of life. Mill villages like Erving and Hinsdale are counted as rural, while no rural population is recognized in Hadley, or Deerfield, or Ludlow, or Agawam. For this discussion let us include those people living so far removed from sizeable villages that they get neither the public utilities such as town water, sewer and lights, nor the stimulus that comes from human relationships in centers of population.

What Are Health Deficits?

What, then, are the health deficits of the rural regions? These deficits are the problems?

We note a lack of understanding that things are wrong and at the same time improvable. Lack of doctors and nurses and dentists and oculists is more or less keenly felt, but the lack of ventilation, of sanitary conveniences, of succulents in the winter diet, have been so traditional and so unavoidable in many cases that they have come to be accepted as the normal and proper condition. Some of these items just listed must be given a little more direct consideration.

Lack of doctors in the country is a real fact and a real problem. Having driven and tramped through the winter snows and spring muds of Western Hampshire County with my doctor neighbor, and knowing rather intimately the fiscal rewards of his hard labor, I can easily understand why doctors do not stay in the country. The same reasons also cause the shortage of nurses in the country.

Lack of conveniences in houses is all too obvious. The old New England farmhouse is too sturdily built to be abandoned and was built without thought of central heating plant,

plumbing, or ventilation. Lack of adequate running water supply is probably the most serious deficit in our country houses; for the water supply determines the possibility of toilet, bathtub, washtub convenience, and hot water at the sink. Most farmhouses can be made comfortable and sanitary. Many already have been so improved.

The opportunities are at hand for abundance of variety in the diet; yet too many rural families live in winter too much on the fat of the land, namely, home-cured pork; with too little of bulky vegetables or fruits.

But underlying all this is the real problem: the *farm income*. We may even wonder whether those who cannot buy toilets and bath-tubs are better off for being conscious of their privations. The real fact is that the cash return for working in the country is in many cases so small that it has compelled rigid economy in many families, and the foregoing of many things which to us would be commonplace necessities. In the early days of our colonial history the life of all was primitive. The wash tub in which the poorer farmer took his bath in the kitchen after the family went to bed was but little poorer than the wash tub in which the squire took his bath. The pump in the back yard of the poorer farmer, if he had a pump, was probably just as good as the pump in the back yard of the squire. If he had an old-fashioned well-sweep it was almost as good as a pump. The distinction in convenience of housing was slight. But from that time to this, advances have been very great in the field of mechanical aids to the comfort of life. Our eating, sleeping, working and playing are, as at present conducted, all dependent on mechanical devices which we are pleased to call civilized. It is in this matter of mechanical equipment that we note differences between city and country. The amount of money handled in the country is slight as compared with the amount of money handled in the cities. The result must necessarily be that the amount of mechanical equipment purchasable in the country is less than in the city. It is further evident that where homes are isolated such services as water supply and sewage disposal cannot be undertaken on the community basis. These provisions must be for individual farms at individual expense.

It is also important to remember that much of the country in New England that was first settled should never have been developed as farm

land. It never was created for farm land and never can be made into prosperous farm land. A great many of the so-called farm homes are in fact the homes of laborers, skilled or unskilled, who get a part of their living from the soil, but the major part of it from work in the woods or on the highways or elsewhere. It is a mistake to consider these homes as farm homes. They are, however, an essential part of the health problem because people live in them and the people who live in them are entitled to good health. Many of our western Massachusetts towns have large areas which are good woodland and nothing else. Some whole towns are nothing but potential forest land. If this forest land is to be properly utilized people must live in these towns. There must be man-power to harvest the forest products and to keep the roads in repair. Where we men, women and children, and where families exist must be provided the elements of civilization: to-wit, sufficient income to get the necessities of life, adequate channels of transportation, adequate schools, adequate religious opportunities, adequate recreational opportunities, and adequate opportunities for the maintenance of health. But the income is the basic problem.

Income Is Basic Problem.

The same lack of total resources which has retarded the development of the housing and which has held back people from the knowledge of many things urban, has also held back the development of school and church and recreational opportunities. All the elements of the well rounded country life are closely linked together in this problem. The common foundation on which it must be built is the income of the average family. It is useless to suggest bath tubs and toilets and running water and revised systems of heating and ventilation if there is no money with which to install them. A study of those regions which are agriculturally prosperous shows quite conclusively that as the fiscal basis of life becomes adequate, these comforts of life are appreciated and provided. Homes in our prosperous country sections are just as well equipped as homes in town; teeth are cared for; glasses are secured when necessary, and the routine of life is put on a more rational basis.

Our extension work is not essentially health work. It is the effort to carry out the provisions of the Federal appropriations by which it is in part supported; namely, "to impart useful and—(Continued on page 831)

Child Health Work in Belgium

The Commission for Relief in Belgium Educational Foundation Does Extension Work in Health Education and Provides Exchange Scholarships and New Opportunities for Study

By JULIA B. TAPPAN SPECIAL ADVISER, CHILD HEALTH SECTION, C. R. B. EDUCATIONAL FOUNDATION, BRUSSELS, BELG. UM.

THE Commission for Relief in Belgium, of which Mr. Hoover was chairman, was founded during the war to administer relief to the people, especially to the children, of Belgium. The Commission for Relief in Belgium Educational Foundation was organized as an outgrowth of this relief work.

The plan of the C. R. B. Educational Foundation provides for direct aid to the universities and technical schools of Belgium, financial assistance to students of limited means, support of institutions devoted to child welfare, and the promotion of good will between Belgium and the United States.

The exchange of professors and students, as one of the developments of this plan, has not only linked the universities of Belgium and the United States more closely together through the interchange of educational ideas, but has also helped in promoting a spirit of good will between the two nations.

In 1922 the Foundation entered into the making of plans for a Child Welfare program in Belgium as provided for in Mr. Hoover's outline of activities. Following the basic idea that extension of education in Belgium is the best use to which the funds can be applied, the corner stone of the program is the health education of all Belgian school children.

In the summer of 1922, Miss Sally Lucas Jean, director of the former Child Health Organization since January, 1923, the Health Education Division of the American Child Health Association was asked by Mr. Hoover, president of the C. R. B. Educational Foundation, to visit Belgium and investigate what was being done for

the health of children of school age. Miss Fanneal Harrison, who had carried on Child Health Work in Europe for the Red Cross during the past four years, accompanied Miss Jean. As a result of this visit fifteen Belgian child health workers, teachers for the most part, were selected for a year's study of health education in the United States as holders of C. R. B. Educational Foundation fellowships. This study was to include not only university work, but actual field work and observation. These young women arrived in the fall of 1922. Their names

work in the country. They also had an opportunity to visit schools, social agencies and child welfare organizations in Boston.

In June some of the students were given a taste of American Camp life at Camp Andree Clark, the Girl Scouts' National Camp.

Miss Fanneal Harrison, who accompanied Miss Jean to Belgium in the summer of 1922, supervised the work of the Belgian Fellows until her return to Brussels early in February, 1923, as director of the child health section of the C. R. B. Educational

Foundation. She is making a thorough investigation of the field of child health in order to make recommendations for a definite program for the Foundation. Miss Harrison was accompanied by Miss Catherine W.

Gavin as associate director. Since her departure the work of the Belgian students has been supervised by Miss Julia B. Tappan, who was recently in charge of Health Education Work in the United States Bureau of Education.

Belgian Nutrition Survey

As one of the first steps in planning a Child Health Program in Belgium, Miss Harrison recommended that a nutrition survey be made to include both the food habits of the Belgian children and the food resources of the country, especially the milk supply.

Miss Flora Rose, professor in the home economics department of Cornell University left for Belgium early in April to make this survey. In one of her unofficial letters she mentions the amazing custom of some Belgian farmers who buy fresh cows from Holland, milk them dry, and then kill them for food. This may partially

Names	Position at	American University
Belene Anciaux	Rixensart	Mass. Institute of Technology
Delphine Borginon	Brussels	Columbia
Yvonne Caesens	La Panne	Columbia
Marie Julienne De Haen	Wuestwesel	Columbia
Josette Delgoffe	Brussels	Columbia
Julia Desmet	Antwerp	Columbia
Antoinette M. Guisen	Eterbeek	Mass. Institute of Technology
Henriette Kesteloot*	Antwerp	Columbia
Josephine Koefel	Ostend	Mass. Institute of Technology
Helene Mayne	Boltsfort	Columbia
Madeleine Noguez	Antwerp	Mass. Institute of Technology
Yvonne Nevejan	Brussels	Columbia
Fernande Spanoghe	Brussels	Columbia
Madeleine J. Tamine	Rixensart	Mass. Institute of Technology
Marie-Louise Weil	Brussels	Columbia

and the universities to which they were assigned are shown above.

Their academic work has included courses in personal hygiene, nutrition, community hygiene, health of childhood and adolescence, mental health, school hygiene and physical and practice teaching. They have had numerous opportunities to observe and practice health teaching in the classrooms. Authorities on various phases of education and social work have conferred with them and have given them an opportunity to visit and become familiar with special fields of activity.

During May all the students were located in Boston in order to put in a month's intensive observation and practice teaching in the schools of Newton, Mass. There they were under the direct supervision of Miss Mabel Bragg, assistant superintendent of the Newton, Mass., schools, whose program of health education is one of the foremost examples of this type of

*Resigned December 31, 1922.

†Transferred to Columbia University, January 1, 1923.

account for the poor milk supply in Belgium.

As another step in making possible a country-wide program of health education in the schools, Miss Mabel Bragg went to Belgium in August to give an intensive course in methods of health teaching for normal school teachers. The normal schools will thus be prepared to disseminate this knowledge and the classrooms of the returning Fellows will serve as demonstration centers of Health Education in action.

The Foundation is naturally working closely with the existing child welfare organizations and educational institutions in Belgium. Three delegates were sent to the International Health Education Conference in Oakland, Cal., June 28 to July 6. These delegates were Mlle. Kaiser of *L'Oeuvre Nationale de L'France*, who is a director of a colony for debilitated children; Monsieur Dronsart, director-general of the Red Cross in Belgium, and Monsieur De Pauw, a member of the Ministry as director-general of normal teaching in Belgium. These delegates were afforded an opportunity

to visit important centers of health education activities in the United States such as Trenton, New Jersey, Newton, Massachusetts, and Iowa City, Iowa, before attending the conference.

Finally, as a result of this program of preparation there were placed in Belgium at the beginning of the school year, fourteen young women trained in health education theory and practice through a year's study; a number of normal school teachers familiarized with health teaching methods through Miss Bragg's short intensive course; and a group of important institutions acquainted through their delegates, with health education programs developed in the United States and in other parts of the world. In addition to this there will be available an intimate knowledge of health education possibilities in Belgium and an authoritative survey of food resources and food habits, through the studies of Miss Rose and Miss Harrison.

All this is the seed. The soil lies in every classroom in Belgium. The flower? Ah, we must look for that in each succeeding generation of Belgian men and women.

50 per cent of the private physicians reported and it is estimated that the total returns (from 21,000 cases) represent approximately 75 per cent of all the cases actually treated by medical men during the period in question. The number of new cases treated during this month would correspond on the same assumption (that they represented 75 per cent of the total) to about 80,000 new cases of venereal disease per annum coming to physicians for treatment, giving the rate of about 6,000 such cases per 100,000 population of which less than one-third are syphilis, somewhat less than two-thirds gonorrhea, and about one-eighth chancroid. It is rather interesting that in some districts, as that of Carpathian Russia, the proportion of syphilis is materially higher, probably as a result of extra-genital transmission. The actual returns (without allowance for non-reporting physicians) averaged 169 per 100,000 for women, 716 for men and 437 for both sexes. By marital condition the rates for both sexes are: unmarried, 704; married, 431; widowed, 115; divorced, 977. Maximum age incidence occurs between the ages twenty and twenty-four, the rate for this age period being 990 for women and 3,300 for men. Particularly interesting figures are given for incidence by occupation, the lowest rates occurring in agriculture, forestry and the textile industry (in the neighborhood of 100 cases per 100,000) the highest rates among those working "for hire," 16,300 cases per 100,000; the banking trade, 8,740, and in the army, 8,070 per 100,000. It is of some interest to note that an analysis by Dr. Pelc in another chapter shows that the official venereal disease statistics for the Czechoslovakian army are very much lower, amounting only to 2,640 per 100,000 and on this latter basis the Czechoslovakian army shows up exceedingly well, with less than one-third as much venereal infection as the American army and only half as much as that of Great Britain. It seems probable that the questionnaire results are nearer the truth in this case. In any case they constitute one of the most interesting and suggestive studies of venereal disease incidence which has been made anywhere throughout the world, and Dr. Pelc and the Ministry deserve the thanks of all workers in the social hygiene field for the substantial contribution they have made.

Rutherford County, Tennessee, has been chosen by the National Child Health Association for a five-year health clinic.

Venereal Disease in Czechoslovakia

THE Division for Study and Reform of Health Activities of the Ministry of Public Health and Physical Education of Czechoslovakia has just published a monograph by H. J. Pelc on the venereal diseases in the Czechoslovakian republic which is one of the most important contributions yet made to the study of the venereal diseases as a public health problem. The parliament of the new republic as early as November, 1918, passed a resolution calling for a revision of the laws dealing with social hygiene and on July 11, 1922, an ambitious and far-reaching law was enacted which abolished the previous system of regulation of prostitutes which had existed under Austrian regime, forbade the establishment and maintenance of houses of prostitution and provided so far as venereal diseases are concerned for anonymous notification, compulsory examination of suspected persons, compulsory treatment of those infected and free treatment for the indigent with instruction of young people at school and after leaving school in regard to the important problems of social hygiene. It would seem from Dr. Pelc's review of existing machinery for combatting venereal diseases

that this law is still largely a dead letter a year after its passage. It is probable that Mark Twain's remark, "There is no end to the passage of laws and no beginning to their enforcement" applies to human nature the world over. It is encouraging to note, however, that thirty-eight Wasserman laboratories are in existence in the republic with twenty-one dispensaries treating some 10,000 cases a year, and a great many other cases are treated under the sickness insurance funds which include in the scope of their operation something like 53 per cent of the population of the republic.

Dr. Pelc's review of the work of public and private agencies in combating venereal disease in Czechoslovakia is chiefly of local interest. The second part of his report dealing with the statistics of venereal disease is of far more general interest. The ministry of health early in 1921 very wisely undertook to obtain some information in regard to the extent of the problem that confronted them and through a questionnaire canvass attempted to obtain full reports from clinics and physicians in regard to all the cases of venereal disease treated in the month of February, 1921. Over

The Health Administrator's Dilemma

The Chief Problem of the Health Administrator is How to Stem the Rising Tide of Public Demand for Preventive Therapeutics

BY EUGENE R. KELLEY, M.D., MASSACHUSETTS STATE COMMISSIONER OF HEALTH, BOSTON, MASS.

IN NEARLY all of the states of this country a superficial historical inquiry will demonstrate that the impetus which resulted in the establishment of a state board of health came from members of the medical profession, usually from the state medical society as an organization. In the establishment of city or town boards of health the same influence can be traced. Moreover, in many, probably most states, it will be found that prior to the statutory establishment of "boards of health" the state medical society through standing committees had made itself responsible for some of the most fundamental functions of health departments. These committees reported regularly upon epidemics, incidence of disease, sanitation of public buildings, sanitary conditions of "vaccine farms" and other matters of sanitary character and interest.

As the legally created "boards of health" came into existence and their powers and duties gradually took form under successively enacted statutes, it is easy to trace for many years a line of demarcation between the field of the private or individual practice of medicine and of these newer public bodies originated for the purpose of carrying out certain obviously needed medical and sanitary services which the doctor either as an individual or through his professional organizations was not in a position to handle. Roughly speaking, on the one hand it became the duty of the "boards of health" to collect, compile, and publish the vital statistics, abate nuisances, consider water supply problems, and be responsible for the "con-

tagious" aspects of disease from the community or "mass" point of view. On the other hand, it was the duty and privilege of the practising physician to handle all "individual" or "personal" problems of disease or health.

As time has gone on there has been a gradual blurring of these lines of distinction. Coincidentally there has

ance practice," "industrial medicine," etc., as well as a very new interpretation of a very old term, "state medicine." All these things are at once a cause and result of a new alignment of ideas relative to all phases of the subject of health and disease.

In this new alignment of ideas relative to health, health departments, disease prevention, and the place of the medical profession therein, one of the most striking and significant developments of late has been the extraordinary growth of interest in health questions by the general public. Health has all of a sudden become really popular and the true explanation of many of these developments which send some of our clinical brethren into a frenzy has been the pressure of popular interest bringing these measures into at least experimental existence, and not because health administrators have cunningly conceived them and foisted them upon an unsuspecting world. In fact, all over the country the health administrator, trained in medicine himself, usually with a background of actual experience in medical practice, and sympathizing in many ways with the instinctive re-

A Pressing Problem In Relationships

THE problem of what the health department and the physicians are going to do to each other and for each other during the months and years to come is even more pressing than the "system," whether state, community or industrial, under which health service is to be administered.

But whatever the machinery of health departments, the aim of medicine no less than health administration must be increasingly the recognition of disease at its inception—that is, prevention and cure at the curable stage.

It is far less to the point for the persons concerned to impugn one-another's motives than it is to face the situation frankly and make an effort to find a real solution.

arisen a great mass of "hygiene" specialties, all receiving recognition as part of the integral programs of health departments. There has also come into existence a now very considerable number of so-called "voluntary" health organizations, good examples of which are such organizations as the National Tuberculosis Association or the American Child Health Association.

Along with these developments have come a certain almost inevitable amount of clashing of viewpoints and general friction and the coming into common medical parlance of such terms as "health insurance," "insur-

action of the medical profession toward conservatism in these fields of public health adventure, is usually exercising a retarding or cautioning influence upon many of these projects. This he does, not because of lack of sympathy with the objectives sought in these newer proposals in health conservation, but because his training and experience alike cause him to be very skeptical whether the methods proposed by many enthusiasts in the health field are sound, trustworthy, and in harmony with the best spirit of our institutions and social traditions.

This development was recently epit-

*Read at the second annual Conference of Health Officers and Public Health Nurses, Lansing, Mich., December 4-8, 1922. Reprinted from *Public Health*, the Bulletin of the Michigan Department of Public Health.

omized and the possibilities involved in the extreme application of some of our most popular brands of health endeavor cleverly satirized in an address by Dr. B. L. Bryant, secretary of the State Medical Association of Maine. Speaking more particularly of the developments of state boards of health, but by inference and context including all the activities of local Boards of Health as well, he said:

At first the duties of these boards were very few. They looked after the water supplies and the sanitation of public buildings and institutions. They helped in the control of epidemics of contagious diseases and later started departments of vital statistics. The necessary laws governing this work were written and placed on the statute books through the efforts of the physicians.

From this small beginning the work of the state boards of health has increased and their functions multiplied, until now their departments are many and their local workers, physicians, nurses and engineers are found in every community of a state. A new field has been opened to physicians in this work of public health. They are employed and their salaries are paid by the state. They are supposed to look after the welfare of the citizens in the field of preventive medicine and sanitation.

Some friction has arisen between these state boards and practising physicians from attempts of the former to limit the activities of the physicians by statutes of regulation, which in their endeavors to enforce has aroused in some instances a feeling of resentment. There has also been a tendency in some states to depart from the legitimate field of preventive medicine and sanitation into the province of therapeutics or treatment of disease. While willing for the most part to yield to the state the authority which seems best for the good of its citizens in preventive measures and the care of the indigent and the insane, the physicians are jealously guarding their independence in what they consider their own individual field of contact between doctor and patient, that of diagnosis and treatment of the general ailments and afflictions of mankind.

In other words, while willing to cooperate as much as possible in a movement which they themselves originated, the physicians in general are making every endeavor to steer clear of state controlled or state medicine which has been so destructive to the medical profession and to the general public in so many European countries.

In more recent years the people as a whole have come to take a decided interest in matters pertaining to health. This interest has continued to increase until innumerable so-called voluntary health organizations have sprung up and continue to multiply all over the country. Anti-tuberculous, anti-venereal, child welfare, maternal welfare, family welfare, baby welfare, in fact a more or less free fare and invitation is sooner or later offered to every one to join one of these

groups on the free road to health.

The Free Road to Health

The prenatal clinic cares for the child in its mother's womb and guides it into a hostile world. It is received in the motherly lap of the baby welfare clinic and tenderly cared for. It receives its nourishment from the warm and hygienic bottle, prepared in the baby milk laboratory. Its tottering steps are guided by the helping hand of the child welfare society. In due time the child enters school where he is welcomed on the threshold by the school nurse and introduced to the school physician. He is vaccinated against smallpox, inoculated against typhoid, is given the Schick test and made immune to diphtheria. His teeth are looked after at the dental clinic, and his tonsils and adenoids are removed at some hospital outpatient department. His eyes are examined and possibly fitted to glasses. Thus equipped and prepared he at once starts to do his health chores. Found underweight he enjoys for a time the luxury of an open air school under the supervision of the nurse and physician of the Anti-Tuberculosis Association. Thus is he guided through school and may take a chance at college. If he escapes here for a moment from his guardians and falls into evil ways there are free clinics provided for even these emergencies.

Safely passing his health inspection and eugenic society examination, wedlock is entered. In due time his wife becomes an attendant of the maternal welfare clinic. His health is guarded by his periodic health examinations. He is looked after at his work by the industrial nurse and then is prescribed for by the industrial physician. If sick at home he has the care of the visiting nurse and the social worker. His future is provided for by his industrial insurance and old age pension. In his declining years he enters some rest home for the aged. His dying pillow is smoothed by the institution nurse and his room brightened by the home visitor. Some burial society looks after his funeral. At last he lies at rest after a long and pleasant journey along the free health road. A high ideal to strive for, and a pleasant journey,—we wish him well!

Divergence of Interests

This subject of the relationship between the health department and the physician can be discussed from two diametrically opposite points of view, both of them true enough so far as they go, but neither giving a fair all-around picture.

One method is to bring out the fact already sketched in outline that modern health departments may be said to represent the aspirations of the physician for greater service to his fellow man; to rest our case upon the vigorous support given in early years by the medical profession and to recall that they have been developed by members of the medical profession to a far greater degree than by any

other professional or social group.

This method might be suited to after dinner speaking before medical societies, but would fail to even hint at the serious questions of mutual adjustment which health departments and practitioners of medicine are now facing.

Another way of treating this topic is to dwell upon the growing divergence in points of view of the practitioner of medicine and the health administrator in their fundamental conception of what the functions of health departments are. That this divergence of view exists, is growing, and is yearly becoming a more and more delicate point cannot be denied.

This divergence of interest, viewpoint, ideals and objectives, between health departments and private practitioners of medicine is largely unnecessary; largely a result of mutual misunderstanding of terms, and is to no small extent the result of application of foreign terms to American conditions with no real basis in fact.

That this non-cooperative attitude of doctors, due to their feeling of suspicion as to the ultimate objectives of health administrators, is more apt to injure the standing of the profession with the public than it is to permanently block the adoption and development of the particular proposals to which the doctors object. However, although the situation is serious, matters have not yet gone so far in this country as to produce an actual lining up of health departmental officials and practising physicians as definite antagonists, although this point is almost reached every year now in our legislative halls apropos of some public health measure. Also, full and frank discussion of all sides and angles of the questions of public health and social medicine ought to be the constant policy of every organized medical club, the district or county medical societies and the state and national medical associations for many years to come, if the medical profession is to emerge with credit from this process through which we are now passing of gradual transformation of our machinery for combating disease and human defects, whether physical or mental.

One thing is certain—the medical profession cannot dodge this issue. It is upon us; the tendency of the times insists upon a more adequate, more anticipatory and more widespread system of combating and conquering these maladies that human flesh is heir to than has ever before

been the case. If we as physicians do not respond to this demand public opinion will gradually develop a new type of profession that will.

Preventive Medicine Inevitable

Assuming that the medical profession as now constituted is to endure in recognizable form, its function must change more and more to the practice of preventive medicine, to the supervision of well people, and it must become less and less the group to be called upon only in times of emergency and distress due to temporary or permanent, partial or complete breakdown of physiological or mental functions.

To state this in another way, whether they like it or not, whether they consciously analyze it or not, all physicians are now becoming, and in a much more pronounced fashion in the immediate future will continue to become, practitioners of preventive medicine, or, in other words will have to take on privately many functions health departments now do publicly.

The real question is—what road shall the profession travel in reaching this destination?

Broadly speaking, there are only two possible ways opening before us. Neither are as yet broad roads; both are full of obstacles, rough places, blind forks, and very dimly indicated. Yet if our profession is to endure in a form as recognizable compared with its present form we must in the next half century, possibly sooner, go through by one road or the other and arrive in the land of real preventive medicine. I am postulating now preventive medicine by all physicians as an everyday practice for the benefit of all their fellow citizens all the time—not preventive medicine in the narrow and restricted sense in which we use the term today as describing the functions of health departments.

One of these roads I will call state medicine. Personally I strongly hope that we as American physicians will never have to travel this road, but I often fear it may be our ultimate destiny as a profession. By this term I mean a type of procedure which is *not* being carried out, *not* being consciously striven for by health departments of this country, but a type of procedure which has been definitely accepted as a nation-wide professional and governmental policy by several European countries. It has been the basis for much of the agitation against the present activities of American health departments by a certain element in the medical profession of this country.

I wish to make clear now my feeling of antipathy to this ideal. It is not based on worry over the future of American physicians nor any objection *per se* to the thing being attacked as paternalistic, socialistic, etc. It is simply because I am beginning to feel more and more doubt as to the soundness of any such conception. I am afraid it will turn out a gold brick, which will not do what its proponents claim for it.

The other road is the one forecasted to considerable degree by Sir James MacKenzie in his book, "The Future of Medicine."

This road involves a considerable extension of the health department's field of action but contemplates a final cooperative attitude on the part of the health department and the private physician to a degree nowhere approached today, and at the same time avoids the final domination and practical absorption of the practitioner by the Health Department.

Concepts They Carry

It is necessary to state that there exists no definite authority for the use of the terms state medicine and preventive medicine in the sense in which I am about to use them. Nevertheless I think I am distinguishing between them in a fashion that most American sanitarians will roughly agree to—viz.: that by state medicine we include the definite invasion of the field of curative medicine by the state, including a certain degree of supervision of the private practitioner of medicine and a certain guarantee of his remuneration directly by the State.

It is the corollary of this definition that preventive medicine includes all manner of activities that bear upon the prevention of disease or promotion of better health and vigor, but does not include the idea of cure, and that there are many important differentiations that are properly to be retained between the idea of cure and the idea of prevention.

It must be conceded promptly and fully that there are many twilight zones in the respective fields of curative and preventive medicine, and it is extremely difficult for any of us to draw the line sharply. For instance, the provision of venereal disease clinics where not only diagnosis is made but treatment administered is clearly an invasion of the field of "cure" on the part of the public health administrative organization, but the important part in prevention of further transmission of communicable disease that such curative treatments plays is so well recognized that only

the most violent of the *laissez faire* type of medical mind objects to the encouragement, introduction and financial assistance of such clinics by public health administrative agencies.

In a similar fashion the question has been forcibly brought to the front in many states in recent years whether the scarcity or absence of medical practitioners in many rural sections is not of itself a public health problem of serious magnitude and hence a primary field for activity on the part of health departments.

Making all due allowances for the folly of any one individual attempting to speak for even all of his own limited group and urging you to refrain from considering the distinction now arbitrarily drawn for the purposes of this hour as a general or accepted distinction, I will from now on use state medicine as a very broad term including all that is generally understood to be involved in public health work as we commonly use the term plus a fairly definite inclusion of some of the activities of curative medicine as well and preventive medicine as a term in which curative medicine is considered as beyond the scope of the jurisdiction of government.

Not many years ago we used to endeavor to further distinguish between preventive and curative medicine by insisting that preventive medicine or hygiene was concerned solely with people in the mass and not with the individual at all. As long as public hygiene concerned itself almost exclusively with the negative concept of health, the concept of dodging infection, this distinction was much easier to make than today when the duty of the state to reinforce the vitality of its citizens by all measures that will better promote the positive side of health is quite generally acquiesced in by our citizens except by a numerically small but vocally conspicuous group.

The fields of infant hygiene, nutrition work, dental hygiene and physical education are certainly matters which finally depend upon the individual rather than the mass route of approach yet who would deny their place today in the proper field of activity of the official health departments?

I will go one step further and assert that the concept of state medicine, as a method of social organization or of governmental activity covering everything relating to health and disease is essentially a European concept which—(Continued on page 848)

Indiana Tries Character Training As a Reform Measure

*Humanitarian Interest Uppermost in the Indiana School for Girls; But
No Maudlin Sympathy Invalidates the Rigorous Program
of Physical and Mental Reconstruction*

THE reclamation of delinquent girls is wholly a matter of education. If the reciprocal responsibilities of community life can be maintained for a period sufficiently long to inculcate the desire for improved conditions along with the habit, then one of the most difficult problems of education faced by a commonwealth is solved. The Indiana plan has been so successful over a period of many years as to command interested examination.

The Indiana School for Girls at Indianapolis is an ideal plant for an educational experiment. It has the advantage of close proximity to a large city, but the detachment of its elevated site suggests entire separation from the complexity of life that has been the undoing of the entrants of this school. Six buildings, each a complete unit, with fine outlook, provide an adequate basis of operation, and their size is not so great but that the school can be operated on the cottage plan, preserving family relationships, while the educational work—academic and technical—creates such inter-cottage activities as make for social adjustment and community of interests. Under these circumstances the transformation of the ineffectual, introverted delinquent into an active, interested, even happy individual seems less a miracle than a thought-out plan.

For failure is only another term for misdirected energies and the fact that a correctional school for girls is necessary anywhere is not so much individual failure on the part of the girls themselves as failure on the part of society to give them a place in the sun. They represent first the failure of the home, or they would have responded to the saving grace of home nurture; of the church, or some lingering touch of an ideal would have en-

abled them to avoid social stigma; and of the school, or they would have learned long since the futility of social behavior.

The girl who "just grows" does not learn from experience; at least she cannot be said to gain much useful knowledge from a harsh, resisting environment during her plastic years and if an early emotional set further complicates her adjustment in a world

sence necessitate failure; hence the general inadequacy of social machinery to develop persons of this type along useful lines is the more incriminating.

The really serious phase of this question is the vicious circle of one failure engendering another. Among these delinquent girls, the breaking of the home is the one constant factor in practically all cases. More than 75

per cent of the inmates of the Indiana School for Girls come from homes that are disrupted; more than 50 per cent are the children of divorced parents. How can a child's mind become integrated when thirteen makeshift provisions for a home are made over a period of two years, as were recorded in the history of a child recently committed to this institution?

The state which through its divorce courts frees parents from responsibilities to one another is called upon sooner or later to assume in some degree responsibility for the children who are turned adrift. For the child "must belong" if it is ever to find itself as a well ordered personality. How otherwise is the "I" and "my" feeling of sharp antagonism toward an unfeeling world going to get itself transformed into the "we" and "our" of cooperative effort?

Dr. Session's Method

Dr. Kenosha Sessions, superintendent of the Indiana School for Girls, is a psychologist first. Through skilled tact she is able at once to ascertain what materials are left of the wrecked personalities she is dealing with, and then she proceeds to build character. She is a broad humanitarian afterward. With her soul sickened by the spectacle of the needless suffering of these girls, nevertheless she coolly and consistently ap-

Social Failure and Delinquency

THE home has failed these girls committed to the Indiana School for Girls; 75 per cent of them are recruited from broken homes; 50 per cent from homes where parents are divorced.

The school has failed them. Either as wanderers, repeaters, or recalcitrants, they have been unable to receive their quota of academic and social training, and hence remain misfits.

But the State through special educational method compensates for earlier shortcomings, and returns as useful citizens more than 70 per cent of all such wards committed to its care.

too complex for her mental equipment, the situation becomes hopeless without special measures for its relief. And these children are inadequate. Of all girls committed during the past two years, less than one-third showed a mental rating above 70. But mental ineptitude is no bar to social usefulness and the joys of reciprocal relationships. So many of the necessary tasks of life are routine procedures that a satisfactory status is maintained throughout their whole careers by many persons of subnormal minds. Great versatility and high intelligence quotients do not guarantee an even tenor of life, nor their ab-



Girls' assembly room in one of the cottages. Every effort is made to free the place of institutional atmosphere and to surround the girls with such influences as are conducive to joyous, wholesome living.



A corner of one of the girls' dining rooms, typical of the rest. The most particular care is given to every detail of appointment and service, for which the girls themselves are responsible.

plies the insight and corrective method perfected in her years of experience with the insane. Insanity, of course, is different only in degree. These girls with false objectives, wrecked hopes, self-pitying attitudes, and fixed resistances are often a much more complex problem than frank insanity.

Moreover, in spite of their resistances, they become willing to be cured. Dr. Sessions receives personally every girl committed to her care. Incidental to an interview, made as informal as possible, the girl is induced to tell her whole story and, what is quite fundamental, she is brought to free admission that, however great her wrongs, she herself is the chief offender. No subterfuge, no cowardly cringing from the logical consequences of her course is allowed to modify the wholesome effect of a frank facing of facts. Once her soul is unburdened, she is free to reconstruct her life.

The first day in the institution marks the beginning of a new era for the committed girl. Every girl enters the school through the hospital. There is no resident physician, but the nurse in attendance sees that the new entrant is suitably bathed, shampooed and prepared for the thorough physical examination she receives at the hands of the physician on the day of his next regular visit to the institution. He comes three days a week. The interval

of isolation and complete rest gives the girl ample time for reflection. She has been made to feel that the dead past is buried, that opportunity opens, and that she will be there no longer than her own acceptance of the situation and performance of duty and training make necessary. The whole scheme gives incentive to the helpless and baffled spirit she brought with her.

The physical examination is real. It involves weighing, measuring, history taking, laboratory investigation, mental tests—all that is required for the proper understanding of capacities and handicaps, for proper placement, and for intelligent management. The girls are usually pallid and undernourished. It is the rule to encounter decayed teeth, bad tonsils and other neglected conditions. Venereal disease exists in about 30 per cent of all admissions. A rather remarkable series

of cardiacs marked the last hundred admissions, but quite as remarkable is the lack of inconvenience here even from heart handicap under a medical system that removes focal infection and makes assignment according to physical requirements. An adequate dietary, sufficient rest, and a proper balance between interesting tasks and refreshing play do the rest.

This does not mean that any namby-pamby sentimentalism governs the routine. The school course involves real work of a nature that disciplines while it trains vocationally and mentally according to the needs of the student. Precision of method and perfection of output are uniformly required. The girls work hard, but they have their reward. Usually they experience here their first joy of performance, and whatever they do, whether laundry or garden work, cooking or sewing, nothing short of the best they are individually capable of doing is accepted, or considered acceptable. Paradoxical as it may seem, the girls are fondest of the most exacting taskmaster. They demand fair play, but scorn favoritism; they regard it a special privilege to serve the house officers and their guests, and the beauty of their work begets in the interviewer the earnest wish that other children presumably under more favorable conditions might somehow be



This building is the home of Dr. Kenosha Sessions, superintendent, of the Indiana Girls' School and houses the administrative group.

vouchsafed the privilege of similar training.

Primitive Means Unnecessary

Almost no disciplinary measures are necessary. A detention cottage is provided, but it is mostly untenanted and the really incorrigible subjects have usually been regarded as custodial cases on the basis of low mental rating or emotional instability. Discipline is administered chiefly through reduction of status. Pride of place ranks with pride of performance in social incentive.

The school is actually an educational institution. The girls are consigned here to learn how to live. When they learn, and it is considered that habit is sufficiently established to enable them to go safely, they are put out in homes or workshops as wards of the state until they reach the age of twenty-one. The wages they earn are subject to strict accounting by the girls themselves, and the margin above what is considered reasonable expense is held to their credit and turned over when they are finally released. Interesting variations are noted in the use they make of these funds upon release, but that is another story. A state agent, Miss Nan B. Wood, surveys the homes where the paroled girls are placed, and acts as their adviser until they are legally free. That the system is successful is proved by the fact that very seldom are paroled girls recommitted.

The successful educational effort at

lar classes, individual diagnosis and adapted treatment get her to growing satisfactorily elsewhere. Special education is expensive, but it is not deliberately wasteful of human material

ests of others thwart her wishes. (2) Obedience she must learn if she is to profit by the experience—individual and social—of others and avoid the painful effects of reacting only



Main entrance of office building of Indiana Girls' Home, Indianapolis.

or certainly potential of the dangers that attach to neglect of these problems. But the system as carried out at the Indiana School for Girls is not merely a corrective method. It is a theory of education much broader than a program for delinquents. Three things the child must learn, according to Dr. Sessions, if she is to fit comfortably into the social pat-

tern on the basis of her own desires. (3) Respect for the rights of property ownership if she is not to become a predatory animal instead of a mutual sharer in community interests.

In at least three children, normal in every way and surrounded by family influences, the same methods of training have been equally successful. One of these, a girl who had more money than one person can well use, but whose parents loved her well enough to train her well, was supervised throughout her early years by Dr. Sessions; another, a boy, whose parents were poor and who had to work his own way through college; and the other, the child of well-bred parents, determined to do their best for their son. All of the three are healthy, self-reliant, successful, and happy individuals under widely different circumstances. And, what seems somewhat significant in view of the similarity of their educational tutelage, it is said they all look alike!

Italy Establishes Eight Hour Law

A legislative decree of March 15, 1923, establishes an eight hour day and a forty-eight hour week of actual work in industrial and commercial establishments, offices, public works, and hospitals in Italy. The decree does not apply to domestic service, and the application to agriculture is to be determined by further regulations.



The girls are trained for leisure as well as for work. Each cottage is provided with assembly rooms and abundant opportunity to cultivate some of the amenities of life which have hitherto been wanting in the lives of these girls.

the Indiana girls' school is the best sort of argument for special education for neglected groups everywhere. When a pupil cannot progress in regu-

tern: (1) Self-control she must have if she is not to spend herself in futile petulance when material things are denied her and the conflicting inter-

The Day Nursery As a Child Welfare Agency

Organized As a Connecting Social Link Between the Unbroken Home and the Foster Home. The Day Nursery Is a Home-Conserving Agency

BY FRANCES COLBOURNE, EXECUTIVE SECRETARY, PHILADELPHIA ASSOCIATION OF DAY NURSERIES, PHILADELPHIA, Pa.

IN spite of the fact that the day nursery idea originated in Europe more than one hundred and forty years ago, and that day nurseries have been in existence in America for nearly half that period, their claim to a place in the front ranks of child welfare agencies is of more or less recent development. Out of the total of six hundred nurseries known to exist in the United States, sixty odd are located in Pennsylvania. Of these, forty are in the city of Philadelphia, serving—at a rough estimate—an average of from eighteen hundred to two thousand children per day throughout the year. This is certainly a large enough group to attract the attention of thoughtful citizens and to arouse the question, Why is this form of child welfare needed and how does it meet its responsibilities?

The passing years but emphasize more clearly the child's need for normal family life. The day nursery is not a makeshift to be utilized by the woman who merely prefers industrial or other occupation to her maternal responsibilities. It recognizes that the mother of very young children and the mother of a large family should not be in industry; it is not a futile substitute for the agency which is unprepared to meet the financial relief incident to a constructive plan for rehabilitation, although, under given circumstances, and as part of an approved plan, it works hand in hand with the family welfare agency and the Mothers' Assistance Fund.

It is vitally interested in the prevention of industrial accidents and the bettering of laws affecting deser-

tion and non-support; in programs for minimum wage, health insurance and maternity benefits. Until these and other social forces are better equipped to meet the situation, however, it has a definite field to cover.

The day nursery may be called a connecting link between the home intact—that is, the unbroken home, or

into industry, no effort at meeting the crisis which is making her the breadwinner instead of the homemaker, we are open to grave suspicion. We cannot isolate the child from his environment: any plan for him affects the whole family of which he is a member, and in turn affects the community welfare, with danger

of setting loose myriad forces we are later unable to control. We dare not build lightly or unintelligently. A prompt investigation of applications, with a home visit before admission, is the only safeguard. The mother's problem must be discussed from every angle—financial pressure, emergent though it be, must not be the dominant factor, but part of a carefully gathered mass of data which will present the whole, true picture of the situation. Plans must be made by someone who knows the resources of the city and whose training and ex-



A photograph of sleeping children in the Jane D. Kent Day Nursery, Philadelphia.

the broken home, where the mother receives a pension which enables her to remain with her children—and the foster home. Properly organized, it is a home-conserving agency, making it possible for the mother upon whom is placed the burden of the wage-earner to meet this responsibility and yet keep her children under her own care.

The first responsibility of the day nursery justifying its claim as a child welfare agency will therefore be expressed in terms of admission standards. It is a very serious accusation that a nursery is one of the forces helping to destroy, rather than to build up the home. Yet wherever there is no intelligent study of the problem which is sending the mother

perience can suggest not only the best solution for the present emergency, but whose vision can map out the course which will look toward the re-establishment of the normal home at the earliest opportunity. This is often a long and strenuous task. It cannot be accomplished from inside the nursery; it means friendly contact with and intimate knowledge of the family in the home.

Each nursery family is a new investment—an investment of time, money, and limitless energy. The wise nursery will employ a trained social visitor, not only to "look into" the investment before taking it on, but also to ensure the highest returns—a maximum of profit with a mini-

mum of loss—after the investment is entered into.

Satisfied that, under given circumstances, day nursery care is the best solution, we can turn our attention to a brief survey of the outstanding service to be offered there. The pre-school child and the kindergartner, who make up the large majority of nursery population, cover the universally acceptable age for preventive care. We are constantly reminded by the doctors that this is the period at which occur the greatest number of contagious diseases—now largely preventable—by psychologists and educational authorities that it is the formative period of life. The responsibility of the day nursery, with its opportunities for developing and fostering physical, mental and social health, is almost staggering. The second step is obvious: medical examination of each child, before admission—as a safeguard from contagious contact, with further examination for a complete knowledge of the child's physical condition, at the earliest possible date. Furthermore, the opportunities for preventive care cannot be lightly neglected or ignored. The progressive nursery calls for a complete and recorded examination by an interested and efficient doctor, with regular weekly visits to the nursery for the purpose of follow-up care, and re-examination of every child at stated intervals. The pioneer nursery of today includes a psychometric examination, and adds physical examination of all other members of the family, not excluding parents, to which the day nursery ward belongs. The mere finding of defects is, of course valueless. The social visitor will see that the doctor's recommendations are carried out, through the use of clinics and hospitals, will persuade and educate the ignorant mother, arrange for operations after consent has been obtained, secure convalescent care and insure proper food and hygiene in the home.

So much for medical preventive measures. In the nursery itself, the fundamental responsibility as a child welfare agency will be expressed in terms of a competent person in charge of the day nursery, with a sufficient staff of workers. The fostering of an atmosphere in which the child may grow mentally, as well as physically, is one of the most neglected and delicate adjustments which the nursery can make. Temperament can be made or marred—personality developed freely and fairly, or dwarfed to suit the old limits of conventional

adult morality. The plastic mould is here in the making—and it cannot be successfully done with clumsy, ill-adapted hands and poor, outworn tools. The superintendent must have something beyond a "natural love of children"; she must know something of the psychology of childhood, of the value of play, to add to her qualifications as a "good housekeeper" or thrifty manager. Her share of the nursery's responsibilities is no light one and she must be aided by a sufficient and efficient staff, and must have at her command, besides, the equipment needed to carry out a healthy, daily routine in the nursery.

Equipment to include: (a) Cribs provided for children under 3 years of age, a separate crib to each child. (b) A rest room, with from one to two hours' rest, provided for all children between 3 and 6 years of age. (c) An isolation room for cases of suspicious contagion. (d) Modern toilet conveniences with separate toilets for boys and girls. (e) Separate towels, wash cloths, combs for each child, with supervision in the wash-room. (f) Nursery aprons for all children; infants should be dressed in nursery clothes. Walls and floors should be washable.

No modern child welfare program is complete without due consideration of nutritional needs and the nursery superintendent must be allowed a budget which will permit her to provide at least two meals daily, one of which shall be a midday dinner of suitable diet, while a generous, and even lavish supply of milk will be an investment yielding 100 per cent dividends in "Children Preferred."

Lastly, it is the responsibility of all child welfare agencies to "give an account of their works." Surely the minimum requirements here will be a record for each child, containing at least the name, address, occupation, wages, and place of work of parent or parents; names and ages of other children, and reason of admission to nursery. The progressive day nursery will not rest satisfied merely to add to the physical and social health of its own limited population. The information that can be gathered by the social visitor can be of infinite value in adding to general knowledge which may lead to social improvement on a wider scale. There will be health records of medical value, social data of interest to other welfare agencies, statistics which will swell the evidence of need for industrial legislation. In short if we believe in the child's right to home life, we cannot

be content to receive the "effects" without trying to understand, possibly ameliorate the fundamental "causes" which send the mother into industry and make the day nursery a necessary part-time substitute for the home.

Ellis Island Needs More Room

Recommendation made to the Department of Labor and Treasury Department by Assistant Secretary Wadsworth after an investigation of conditions at Ellis Island includes a request for funds to establish new buildings with the purpose of providing the United States Public Health Service adequate space for its needs. Of the two thousand aliens which are now permitted to land each day at Ellis Island, from six hundred to eight hundred are given intensive medical examination. Special committees are provided for men and women. Five women doctors are employed for this purpose. The space available, according to Dr. Wadsworth, makes eight hundred the maximum number who can be handled in this way. The balance of the aliens, from 1,200 to 1,400, are inspected as they pass out of the waiting room, each one by two doctors. More space and a carefully arranged system would provide for intensive examination of two thousand, as all should be subjected to the same discriminating physical tests.

It is suggested that the demand for hospitalization could well be reduced by a more careful examination of immigrants before they are taken on board, but the report concerns itself chiefly with the improvement that can readily be introduced if additional space is made available for the public health service.

Award for Contraction of Disease from Furs

The London County Court recently rendered a verdict for damages in favor of a woman who claimed that she had contracted "fur dermatitis" from the collar of a coat she had purchased from a customer. King's College Hospital reports between thirty and forty cases, all due to wearing cheap furs.

An analytical chemist, called in for the defense testified that the disease was caused by insufficient washing after dyeing the skins and that it was only the Belgian and German dyed skins that were found to be infected, the ones imported from America did not show any defects.

The Subnormal and Psychopathic Child Is a New Method of Attack

Abnormal Reaction to Unfavorable Environment Does Not Preclude the Capacity to Respond to Changed Conditions

BY LOUIS A. LURIE, M.A., M.D., CINCINNATI, OHIO.

IN STUDYING the problem of the subnormal and psychopathic child we must perforce concern ourselves entirely with the study of conduct reactions. For after all, psychiatry in the broadest sense, can be defined as the study of the conduct reaction of the individual in his attempted adjustment to his environment. Conduct reactions in turn are dependent upon two factors, namely, the innate physical and mental capacity of the individual for reacting and the nature of his environment. Obviously, to evaluate the first factor a thorough physical and neuro-psychiatric examination is necessary. As far as the second factor is concerned the mere knowledge of the abnormal environmental influences entering in any given problem case is not sufficient. It is essential to know in addition the conduct reaction of the particular child when removed from pernicious environmental influences and permitted to live in a normal environment.

It is just such a complete study that we are making at the Psychopathic Institute of the Jewish Hospital. Here we have created an observation station where the child's social reactions in a normal environment can be observed with the same scientific precision as is applied in examining his physical condition. The Institute is housed in a private dwelling on the grounds of the Jewish Hospital and its capacity has been purposely limited to twelve, in order that the child might be impressed with the fact that he is living in a home, rather than in an institution. The entire scheme of the furnishings further accentuates the home-like atmosphere which is so essential.

Before being admitted to the Institute the child is placed in the children's ward of the Jewish Hospital where certain routine examinations

are made. These include a physical, neuropsychiatric, visual, dental, x-ray and serologic examination. Special examinations are made by members of the staff of the hospital as the indications arise. In this way the child receives the benefit of diagnostic group medicine. Upon completion of these examinations the patient is transferred to the Institute. Here the child becomes a member of a

the child. The defective and retarded child who probably has become discouraged through inability to cope with the more or less abstract work of the regular school curriculum, rejoices in his ability to perform manual tasks and to accomplish definite results. Self-esteem is thus unconsciously engendered, and a wholesome mental attitude created.

Many of these children, as a result of constant failure either at school or in industry, have developed an inferiority complex by the time they are sent to the Psychopathic Institute. This must be overcome before any permanent adjustment can be made. Nothing is more conducive to effort than the knowledge that one has the ability to accomplish or produce. At the same time the method and character of the child's responses disclose his potentiality for future industrial training and for social adjustment when returned to the world.

Recreation and comfort are not overlooked. Various forms of entertainment provided by volunteer social workers—outings, club activities, theater parties and athletics—also present opportunities to observe the child while at play. The effects of a clean home, clean beds and clean living in general are noted. All reactions are carefully recorded on special charts, and finally correlated with the facts obtained from the physical and mental examinations. These comprehensive data serve as a basis for diagnosis and plan of treatment.

The following case reports will illustrate the results of such procedure.

Case 1.—A. T., a boy, age 9, was referred to the Psychopathic Institute of the Jewish Hospital by the Juvenile court of Hamilton County.

Chief Complaint.—The complaints registered against the child were stealing, running away from home

A Medico-Social Experiment

FEEBLEMINDEDNESS should not be considered a clinical entity.

Rather it should be looked upon as a symptom of some grave, underlying constitutional disturbance, the correction of which will very often lead to a marked improvement of mental state, if not to a complete cure.

The enormous possibilities of this concept in the handling of a medico-social problem that has been looked upon as hopeless brings out the importance of the experiment being conducted at the Psychopathic Institute described.

family and as such is called upon to share in its routine life. To the boys are assigned such tasks as keeping the lawn and yard in good condition, taking care of the furnace, painting and doing whatever repair work they are capable of doing. The girls help wash dishes, make beds, prepare meals, sew, and mend. Those of school age are sent to the district school. Definite time is set aside for study and a teacher is provided for those requiring special instruction.

Several afternoons a week are devoted to vocational training in the form of bead stringing, sewing, carpentry, weaving, pottery, and reed work. These occupations are of direct benefit to the patient and of great importance to those observing



A detached house, utilized as the home of the Psychopathic Institute, preserves the atmosphere of home life.

and general incorrigibility. At one time he was implicated in a sodomy case.

Onset.—According to the mother, the boy began to be incorrigible a year previous to his admission to the Institute, when she was forced to go to work in order to help out the family budget. The boy was thus left to his own devices and unfortunately became associated with a group of incorrigible boys, two of whom already had court records.

Family History.—Maternal grandmother insane; mother very nervous; father was a delinquent, and is a graduate of the Lancaster, Ohio, Reformatory. The family situation is a very bad one, the father has been working only part time; the mother has been away from home the greater part of the time doing washing and cleaning.

Past History.—The personal history is negative except for the fact that at the age of seven the child received a severe injury to the right side of the skull, since which time he has suffered from night terrors.

Examination.—The general physical examination was negative. The child has the saddle shaped nose and characteristic wrinkling of the skin around the angles of the mouth so often seen in congenital lues. The neurologic examination showed that the patellar reflex was absent on the right side; both achilles reflexes were also absent. An x-ray of the skull showed a thickening of the frontal bone over the right supraorbital region.

The blood Wassermann and Hecht Gradwohl tests were four plus positive. On the Stanford revision of the Simon Binet tests, the boy received an intelligent quotient of 88. Mentally he was retarded one year and two months.

Mental Makeup.—Temperamentally he was suspicious, sanguine, impulsive, non-egocentric and generous. He exhibited a violent temper and was

very obstinate and intellectually dishonest. Mentally, however, he was very alert and emotionally highly unstable.

Social Reaction.—The first thing the patient did upon admission to the Institute was to attempt to run away. Several of the other boys caught him and brought him back screaming and fighting. After this outburst of temper, he became more cooperative and adjusted himself fairly well to his surroundings. He became less suspicious and impulsive and more tractable. He remained, however, emotionally unstable. In addition he showed the lack of proper home training, his general deportment being rude and ill-mannered.

Diagnosis.—(1) Congenital neuro-syphilis.

(2) Emotional Instability.

(3) Lack of proper home and environmental influence.

Recommendations.—(1) Intensive antisyphilitic treatment with the hope of relieving his emotional instability as well.

(2) Social rehabilitation of the home; if that is found impossible, child should be placed in a boarding home.

Course.—Both recommendations have been carried out with the result that one year after the patient was discharged from the Institute the report of the Juvenile Court officials is that he is getting along nicely both at school and at home. The boy reports regularly at the Institute of his own accord.

This child represents a type that is fairly common; a type in which the abnormal conduct reactions are due

both to physical and environmental influences. Furthermore, unless both factors are recognized and treated we cannot hope for a permanent adjustment. In this particular case the emotional instability no doubt was due to the possession of a nervous system vitiated by hereditary syphilis. The emotional instability in turn permitted the environmental condition to exert a pernicious influence thereby producing a delinquent and incorrigible child. The solution of this problem called for the correction of all three factors.

Case II.—L. C. a girl, age sixteen, was admitted to the Psychopathic Institute at the request of several social agencies, as well as of the Juvenile Court.

Chief Complaint.—The girl was said to be feeble minded and a sex delinquent. The diagnosis of feeble minded-

ness been made as a result of several psychometric examinations. Her intelligence quotient ranged from 68 to 70.

Examination.—The general physical and neurologic examinations were negative. A visual examination, however, showed that the girl was suffering from chronic trachoma and that her vision even with glasses could only be brought up to half normal.

The girl's mental makeup was very interesting. She was very suspicious and untruthful. Her manner was very impertinent and although willing to work she was not dependable, requiring much supervision and correction. An outstanding characteristic was a high degree of suggestibility. Her conduct therefore was determined by the individual from whom she received a suggestion. In addition, the girl was very moody. During the moods she was sullen, lazy, and impertinent. The patient herself accounted for these moods by physical complaints. However, this could never be definitely established as many thorough physical examinations failed to reveal any cause for the supposed pain.

Little by little, the environmental influences of the Psychopathic Institute began to have effect and the girl began to improve both physically and mentally. She was made to assume responsibilities and from the moment she did, there was a continuous improvement in her conduct.

The social history in this case is very bad. The report showed that the home is in a wretched condition. The mother is feeble minded. Two brothers are also feeble minded and one sister is suffering from hysteria. The parents are absolutely unable to care for their children.

Diagnosis.—The following diagnosis was made: Patient is mentally retarded. The mental retardation is



As soon as possible the children under observation are given such routine responsibilities as they would have in a family unit.



The children are observed at work as well as at play and full opportunity given for satisfactory adjustment.

due largely to a severe grade of defective vision. The delinquency and character defects are due to lack of proper home influence.

Recommendation.—(1) Medical treatment for the eyes. (2) Girl should be removed from her home and placed in a boarding home under strict supervision.

Course.—The girl expressed a preference for work in a hospital. This was secured and she has worked steadily in a hospital for more than a year. She is very happy in her new surroundings and is working faithfully and diligently. Her superiors are pleased with her efforts.

This case illustrates the fallacy of diagnosing feeble-mindedness as a result of psychometric tests alone. Had this girl not received the benefit of a thorough medical examination and social observation at the Psychopathic Institute she would no doubt have been committed to the state institution for defective delinquents. In fact, such a recommendation had already been made before the child was referred to the Psychopathic Institute.

Case III.—H. U. was referred for examination because of lack of mental development. Although eight years of age, the child could neither read or write and was able to pronounce but one word "mamma." Furthermore she was unable to dress or undress herself. Physically she appeared to be a perfectly healthy child, being fat and rosy checked.

The family history was negative. The child had an uneventful infancy. She had her first teeth at twelve months and walked at fourteen months. During past six months the child gained enormously in weight.

Her mental retardation became noticeable at the age of two and one-half years.

With the exception of a decided convergent strabismus, the general physical and neurologic examinations were negative. There was, however, a marked endocrinopathic state. The child was very obese, being about thirty-five pounds overweight. There were large deposits of fat over the breasts, abdomen and hips. The skin was soft and smooth. The presence of vasomotor disturbances was evidenced by the mottling of the skin and the cold, moist and cyanotic extremities. The face was broad and of the acromegalic type; the teeth were notched and spaced; the thyroid gland was palpable but not enlarged. The fingers were typical of dyspituitarism being short and spade shaped.

X-ray of the skull showed a large and shallow sella-turcica.

The blood Wassermann of the child as well as of the parents was negative.

Mentally the child appeared to be about four years of age, although this could not be determined accurately as it was very difficult to fix the child's attention during the psychologic examination.

A diagnosis of dystrophy adiposogenitalis associated with mental retardation was made. The patient was given extract of the whole pituitary gland combined with extract of the thyroid gland in gradually increasing doses.

It was not long before the improvement was noted, two months after beginning the treatment the motor restlessness was greatly reduced. The face assumed a more animated expression and the child was using many words. Four months later, the child was able to recite the entire alphabet and was able to have her eyes tested for glasses by means of the regular chart.

In addition she had learned to dress and undress herself and wash, dry and stack dishes. In less than a year she was able to speak well and take part in the general conversation.

Today she speaks well, reads and writes and is able to add three columns of figures. Her general deportment is that of a normal child.

Constitutional Causes

This case as well as the preceding one, should make us view the problem of feeble mindedness from an entirely different angle. We should disabuse our minds of the belief that feeble mindedness is a clinical entity, diagnosable means of a psychometric ex-

amination, and realize that it is merely a symptom of some underlying constitutional disturbance which very often is remediable. Such an attitude will permit the substitution of a constructive program in place of the present palliative program of building more and more custodial institutions.

We have already made a small beginning along these lines in Cincinnati where we have established an institution known as the Home School. Here we have placed a number of definitely feeble minded children who have been thoroughly studied at the Psychopathic Institute of the Jewish Hospital and who as a result of that study show that their feeble mindedness is associated with some physical condition that can be corrected by the exhibition of the proper therapeutic measures. These children will be kept at the Home School for a period of years and given intensive social and vocational training, and proper medical treatment in the hope that thereby their mental condition will be so improved that they will be able to take their place in society as self-supporting individuals.

Up to the present time we have studied more than one hundred fifty children who have been conveniently divided into two large groups, namely, functional and organic. Numerically the cases are almost equally divided between the two groups.

In the functional group we have placed those children who are normal



The place bears very little resemblance to a custodial institution. In fact, it is designed to discriminate between the curable and incurable cases.

physically but who present conduct disorders. This group contains the neurotic children, the emotionally unstable, the hyperactive types, and those suffering from pernicious environmental influences. This grouping permits of a further subdivision into (a) the environmental and (b) the individual.

In the first subdivision—the environmental—belong those problem cases where the abnormal conduct reactions are due primarily to influences external to the child, while in the second subdivision—the individual—belong those cases in which the abnormal conduct reactions are due to functional disturbances within the child himself. It is in this group especially that the tactful psychiatric social worker is of the greatest help. Here also the quickest and most startling results may be expected.

In the second, or organic group, are placed the children who show some form of psychopathy as a result of an organic lesion.

As is to be expected, lesions of the central nervous system are the most numerous and of these syphilis of the nervous system constitute nearly 50 per cent.

Next in frequency to involvement of the nervous system come disturbances of the endocrine glands. A very large percentage of the organic cases have been improved through medical treatment.

In conclusion the author wishes to

emphasize two very important facts:

(1) The nature of a child's conduct reactions depends upon two factors, namely, his innate physical and mental capacity for reacting and the nature of his environment. Hence when confronted with any form of psychopathy in childhood both of these factors must be properly evaluated and the data thus obtained correlated in order to make a correct diagnosis and to outline the proper treatment. In addition, the reactions of the child when placed in a normal environment must also be known. At the Psychopathic Institute of the Jewish Hospital we have created an observation station where such a complete study can be carried out scientifically.

(2) Feeble mindedness should not be considered a clinical entity. Rather it should be looked upon as a symptom of some grave underlying constitutional disturbance, the correction of which will very often lead to a marked improvement of the mental state, if not to an entire cure. Such a thesis opens enormous possibilities for handling a problem that always has been and still is looked upon by many as hopeless.



Pride of place and pride of personal appearance contribute to the child's restoration.

To Rid the World of Leprosy

STRINGENT legislation, inhuman and one-sided, based upon the older conception of the leper as a total loss to society, an outcast and a pariah, while he perforce awaited the final horrid outcome of his disease, was none the less effectual in ridding certain European countries of the menace. Neglect of the problem prevents the United States from being free of the disease, although human conditions for the victim and the possibility of eventual cure make the problem far more promising of absolute control than it has ever been in the past.

More effectively than any other disease leprosy removes its victim from hope of social usefulness. He becomes a complete loss to society as worker with either hand or brain. Instead he is a costly menace. Hitherto deemed incurable—though not actually so—he has been a permanent charge upon society instead of a temporary care. The aggregate loss of earning capacity by the two million or more lepers in the world today and the cost of their care and mainten-

ance are a deliberate waste, as the disease is now quite possible of control within a reasonable time.

The problem, far less in magnitude than that involved in the control of tuberculosis, can by segregation and scientific care be reduced to insignificant proportions within a very short time. With no friendly refuge, the leper is hopeless. An investigation by the American Mission to Lepers is reported by W. M. Danner in the *Bulletin* of the Pan American Union.

Lepers are found all over the world, states the report. Russia probably has more lepers than any other European country. The Scandinavian peninsula is infected along its entire western coast line. Portions of Spain and Portugal are badly infected, and along the northwestern shores of the Mediterranean, lepers are found. India and southern China may be called hotbeds of leprosy. Japan, too, has many lepers. The Philippine Islands have about five thousand, greatly reduced from former numbers by segregation. The Hawaiian

Islands have a small quota. Practically the whole coast line of Africa is infected, in some sections heavily; also Madagascar.

Acting upon the advice of experts, the United States Senate Committee on Public Health and National Quarantine in 1916 presented the bill which became a statute appropriating \$250,000 for the purpose of providing a national leprosarium.

South America is by no means free from the contagion, which spreads up through Central America and into Mexico, where it is severe. Oceania and the islands of the seas have not escaped. Even far off Iceland has her leper colony and Greenland knows the disease. There are lepers in Canada and there are lepers in the United States of America. Certainly it is none too early to start an educational campaign in every nation where the disease exists.

The South American survey made by Dr. Browning is thought-arresting and gives opportunity for at least a limited study of the situation. It encourages—(Continued on page 830)

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Editorials

IT IS not enough for the successful health officer to formulate a sound administrative program, to secure the financial support of the city fathers, and to obtain the active cooperation of the medical profession. These things he must do, but he must accomplish one thing more; he must develop an understanding of his program and a real participation in it on the part of the general public. This is the final and ultimate test of his capacity for leadership.

It is of no use to provide prenatal clinics and infant welfare clinics and tuberculosis clinics if the public do not come to them, return again to them, and carry back into their homes the instruction given. It is impossible even to gain an effective control over the common communicable diseases without a real comprehension on the part of the public of the principles involved, and a willingness to isolate a suspicious case "before the doctor comes." The public health objectives of twenty years ago could be attained by the exercise of police power. Those of today can only be reached by education, and again, education and still more education.

The public health nurse and the clinic doctor are of course the immediately effective agents in bringing hygienic knowledge to the individual. Yet after all they are but units in a larger organism. The health department as a whole must stand for something definite in the mind of the community if the nurse and the clinic doctor are to find a ready hearing. And, in this connection, when we speak of "the department" we could better write "the health officer"; for, as every student of education knows, the most effective publicity can only be secured when attention is concentrated upon a human personality. "The department of health announces so-and-so," or leaves one quite cold; but "Dr. Jones, the health officer, says such-and-such" may arouse a real interest.

There is perhaps no other member of the state or city government who, day in and day out, has such an opportunity as has the health officer to make a direct personal appeal to the people of his community. The power gained through the use of this opportunity has carried men to the highest

Leadership in Health Work

places of honor as in the case of the junior senator from the state of New York. It is a power which should be used by the health officer with a conscientious regard for scientific truth and a single minded devotion to the public service; but it is a power which should not be neglected. The ideal health officer is one who can so speak and write, so radiate the force of intellect and personality with tongue and pen, that his fellow citizens will regard him with respect and affection, and will be prepared to accept with confidence his leadership in the daily struggle with preventable disease.

IN THE name of athletics there has been created a system of interclass, interschool, and even international rivalry in games and physical prowess which raises the spirit of endeavor

Competition in School Health

among school children to a point not yet approached in any other line of their ambitions.

In a way the measure of success of competition in muscular coordination, team play, and personal excellence in athletics is in the number of original competitors and the quality and duration of the developmental period to which they are subject prior to the selection of the few who finally represent the many. And yet, with all the best of intentions, how small a portion of the boys and girls in school or college actually receive the full possible value of physical development when athletic competition is the desired end result, and how meager, how artificial, how limited within schools or classes are what stand for scholastic or academic competitions leading to the decoration and formal presentation of medals or bookish gifts at graduation time.

Have we not a greater game to propose? After all, the game of youth is life! Is there not a basis we can offer for contests within schools, or between student bodies of nations, where every child is a competitor and the time of the game is the whole school year, not a hectic ten seconds for a sprint or the steaming periods of a basket ball game?

A few scores could be proposed, easy of record, accurate and readily checked, involving the performance of teacher, parent, doctor, and nurse as well as school child, which should provide an all inclusive program in which every member of the community will have a stake.

These are the essentials of the score in such a school term game of health:

(1) The cleanest score in school attendance, *i. e.*, the lowest percentage of days lost from sickness out of the

total possible days of attendance of the school or class, or in military terms, the lowest non-effective rate.

(2) The best performance in remediable defects, *i. e.*, the lowest occurrence in class or school of correctable defects, including such defects as lack of immunity to small-pox or diphtheria.

(3) The nearest approach to universal compliance with a good standard of growth in height and weight for age during the school months.

(4) An acquisition of good posture in rest and in action.

It would not be difficult to set up a bogey score for the schools to aim at. We shall rarely find a day school in large cities where the percentage of absences falls below 4 per cent. In country boarding schools a record of only 1½ per cent days lost may be attained. Nothing but 100 per cent should satisfy perfection in scoring under 2, 3, and 4.

Already a series of cups have been offered in Yonkers, N. Y., for health competition on a somewhat similar basis, and the idea has even reached the select and conservative old line private and endowed boarding schools.

Who will be the first health officer or director of school health to promulgate the rules of such a competition, to issue a "Spaulding's guide," for its conduct? We suspect that if this were done few parents or school principals would be so dull as to miss the thrill of satisfaction in sharing with the child the happiness of being a member of the trophy school.

ONE of the outstanding events of the Boston meeting of the American Public Health Association was the report of the Committee on Municipal Health Department Practice. It will

Standardizing Health Practice

be recalled that this committee conducted in 1920 a survey of the health organizations of the eighty-three large cities in the United States.¹ The aim of the committee has been, first of all, to secure the establishment of a permanent bureau for continuing this work so that there shall be somewhere a file of up-to-date information in regard to current health practices and the appropriation, personnel, programs, and procedures of individual departments. This end has been attained by the action of Surgeon-General Cumming in establishing under the United States Public Health Service an office of administrative health practice under Dr. Paul Preble which in close cooperation with the American Public Health Association, is to carry out this important task.

1. Bulletin 136, U. S. Public Health Service.

The second objective of the committee was to provide machinery for giving direct assistance to the health officer who is striving to develop his department to a point of fullest efficiency and for enlisting public opinion behind him in such an effort. This aim too has been attained through the generosity of the Metropolitan Life Insurance Company which has made a grant to the committee for the establishment of a field service. Dr. W. S. Rankin, the able state health officer of North Carolina, has obtained leave of absence to assume the post of field director and will be at the service of members of the American Public Health Association in aiding them through correspondence, personal visits, and special surveys to establish their work on the soundest possible basis.

The American Public Health Association deserves well of the Republic for this constructive effort to better the public service which its members are rendering to their respective constituencies. High professional ambition and a keen sense of public responsibility are thus displayed by this organization of health officials representing the four nations of the American continent. Better official service, wider support of the health program, and substantial reduction in the burden of preventable disease should result from the operation of the machinery thus initiated.

THE past month has been rather solidly filled with health conventions of one sort and another and from each convention the patient objectives of platform oratory—the great mass of the

Convention Oratory

members and hearers—have returned home with mixed feelings. Such and such a speaker gave us the result of important laboratory investigations, another an illuminating analysis of statistical data, a third described some valuable and original administrative procedure. But, Dr. —, how he bored us with an exhaustive history of child hygiene or anti-tuberculosis work and a labored exposition of its well-known principles!

At every meeting we listen to half a dozen of these elaborately written (they are always written) addresses with their strings of platitudes. The presentation of new facts is always worth while. The delivery of a popular address on scientific subjects is worth while, if it be well done and appropriate to the audience; but why a general essay on the elementary principles of some branch of public health to an audience of specialists?

The crux of the whole matter is of course, novelty. The results of research are new. A popular address is new—to a general audience. If a speaker before a technical group has new light on the history of his subject or a new analysis of its general social relationships, well and good. If he has nothing new to say, let him in mercy remain silent.

IF THE public health nursing service, so effectively carried on in the past by voluntary agencies, is to be gradually transferred to the official health agencies of city, county, and state, it is essential that the quality of the service rendered shall remain unimpaired. The nursing service of public agencies is at present less well supervised and

Necessity for Nursing Supervision

on the average less excellent in personnel than that operating under private auspices, according to data presented before the public health nursing section of the American Public Health Association at its Boston meeting. In large measure this is due to the fact that health department nurses are too often scattered through half a dozen bureaus—of child hygiene, of school hygiene, of communicable diseases, of tuberculosis—reporting to the medical or even sometimes the lay directors of these bureaus, with no one to guide and supervise their work who has a first-hand knowledge of its technique.

Where such a condition obtains there is often an astounding waste of valuable training and experience of which the responsible bureau chiefs are quite unconscious because they do not at all realize the possibilities of true public health nursing at its best. The Goldmark report issued last year gave striking illustrations of this condition; and there are city health departments today which boast of the fact that their nurses pay twenty visits a day, with no suspicion that this very fact condemns the service they are rendering. Any sort of a lay worker can drop into a tenement home and say a pleasant word and remind the mother of a clinic date and then pass on again. It is pure waste to use nurses for this kind of service. The function of the public health nurse is really to teach, to demonstrate hygiene in the home. To do this takes time and it takes expert supervision and expert direction. The best standards demand one supervisor to every eight staff nurses; and it is essential for the highest efficiency that all the nurses in a given organization shall be grouped under a single director who is herself a nurse. Under a specialized plan they

may be assigned as regards their daily routine to the directors of other divisions but their qualifications, procedures, and general morale should be maintained by expert professional direction.

THE first annual meeting of the American Child Health Association held in Detroit, October 15-17, was a notable success from several points of view. It brought together from

all parts of the country a considerable number of physicians, health officials, and educators to discuss present day efforts for the promotion of the health of the child.

The Child Health Conference

The program broadly covered all phases of child hygiene from the prenatal period through school life. The formal papers were carefully prepared. A 100 per cent attendance of the speakers and discussants added much to the sessions. A number of round tables for informal discussion provided an opportunity for those with kindred interests to get together and also gave zest to the meeting. The round table luncheon for delegates from the affiliated societies was attended by about two hundred.

An important feature of the meeting was the joint session with the Central States Pediatric Society and the Wayne County Medical Society. Papers of considerable importance were presented on the trend of pediatrics, the growth of our knowledge of infant feeding, the status of mental hygiene of the child and the standards of growth and nutrition. Much interest was shown at several of the sessions in so-called growth and nutrition standards. The consensus of opinion seemed to be that while weight-height-age tables were very useful in interesting the child in its health they should always be used in conjunction with a complete physical examination by a competent physician, when estimating the degree of malnutrition.

Another helpful joint session was held with the child welfare section of the National Organization for Public Health Nursing at which time the problem of early infant deaths was discussed from the standpoint of the physician, the public health nurse and the official agencies.

The public meeting held in St. Paul's Episcopal Cathedral on the opening evening revealed the local interest in child health work. Significant addresses were delivered by Hon. Herbert Hoover, president of the association, and by Dr. George E. Vincent. Both stressed the importance of a careful and painstaking evaluation of child health work, especially in its relation to the broader public health program. Secretary Hoover insisted

that the Association could render its greatest usefulness only in so far as it assisted local communities to face squarely their own child health problems. Definite and concrete methods for individual communities must be based upon a thorough study of local needs. The basic factors in home and community hygiene should never be overlooked.

The sessions and round tables devoted to health education were largely attended and a keen interest taken in their discussions. At one of the sessions a thorough consideration was given to work in health education which should be done by the doctor, the nurse, the teacher, and the nutritionist. At another session the supreme importance of the preschool age was emphasized and practical methods of securing medical examination and supervision detailed.

This conference plainly showed that interest in child health continues to grow and that workers in this field feel the necessity of coming together for discussion of their problems. It brought to a focus various lines of endeavor for the whole child. It brought into strong light the necessity for a national association to so organize as to be able to study local needs and suggest practical methods applicable to the individual communities. As a *sine qua non* for all this the association must have the loyal support of a wide constituency and its work must be guided by sound technical advice.

FOR a number of years Trillat and his associates¹ have been communicating the results of interesting and suggestive experiments bearing upon the relative importance of dust and droplets

Droplet vs. Dust Infection

as carriers of bacterial infection. In a recent communication² Trillat continues his earlier studies by showing that bacteria suspended moist in droplet form penetrate a cotton filter far more readily than when aspirated in a dried powder. Furthermore when guinea pigs inhale droplet infected air the bacteria are drawn into the deepest part of the lungs almost instantaneously while with infected dry dust inhalation for fifteen minutes yields negative results, the bacteria in the dry state being caught by the mucous surfaces, while the droplets, "thanks to their spherical form and surface tension," are not thus fixed.

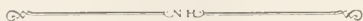
These experiments appear to be of the first importance in connection with some of the fundamental problems concerned in the etiology of disease. Spherical form and surface tension seem

These experiments appear to be of the first importance in connection with some of the fundamental problems concerned in the etiology of disease. Spherical form and surface tension seem

1. Comptes rendus de l'Académie des Sciences, clvii, p. 873; Vol. 158, p. 1441; clx, p. 153; clxx, pp. 1291 and 1529; clxxiii, p. 109.

2. Comptes rendus de l'Académie des Sciences, clxxvi, p. 144.

however to offer an inadequate explanation of the observed results. It seems possible that the mechanism involved is electrical in nature since it is known that fine water spray particles carry a negative charge while non-metallic dust particles carry a positive charge.¹ In any case the problems here raised deserve the very serious attention of bacteriologists and epidemiologists.



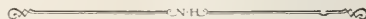
YEAR after year it has proved necessary for leading physiologists and bacteriologists and medical men to journey to their respective state capitols and defend the rights of medical research

Friends of Medical Progress

against the fanatical and unfair attacks of antivivisectionists, and antivaccinationists and others of their ilk. Three times within the last three years—twice in California and once in Colorado—state wide campaigns on a far reaching scale have been necessary to defeat the efforts of the anti-medical cults. Some of the members of these organizations are no doubt sincere but misguided—others are insincere and misleading. As a whole “their status is that of a public nuisance and a serious menace to society.”

If the “antis” should ever gain a temporary victory in any state, not only would the advance of medical science cease but also the manufacture of such primary essentials for the prevention of human and animal suffering as smallpox vaccine, diphtheria antitoxin, and hog cholera serum. It is the general public which would suffer and it is manifestly unfair that the scientific group immediately concerned should continue to bear the whole brunt of defending the cause of intellectual freedom and the service of the suffering against an organized and well financed system of propaganda. We heartily welcome, therefore, the entrance into this field of the Society of Friends of Medical Progress, a national lay society organized and incorporated “(1) To encourage and aid all research and humane experimentation for the advancement of medical science; (2) to inform the public of the truth concerning the value of scientific medicine to humanity and to animals; and (3) to resist the efforts of the ignorant or fanatical persons or societies constantly urging legislation dangerous to the health and well being of the American people.”² The honorary president of the society is President Eliot. Its honorary

vice-presidents include Presidents Angell and Pendleton, Archbishop O’Connell and Bishop Mann, Ernest Thompson Seton and Owen Wister; while its acting president is Professor Thomas Barbour and its field secretary Ernest Harold Baynes. A wide appeal must be made by the motto prefixed to the statement as to why this new society was founded: “If you owe gratitude to any doctor here is a chance to pay your debt”; and the active part taken by men like Mr. Seton and Mr. Baynes should enlist all true lovers of animals in behalf of that scientific progress which since the days of Pasteur has benefited the lower animals quite as much as the human race.



PUBLIC health problems in America are complicated by a factor which is present in no other nation to quite so great a degree, the factor of racial idiosyncrasy. The studies of ten thousand male workers in ten representative industries¹ recently completed by the United States Public Health Service² are of fundamental importance in connection with the influence of such racial factors upon health standards in industry.

Racial Factors in Industry

These studies indicate in the first place that the factors of race distribution and age distribution are almost inextricably intermingled. Thus, in the chief groups under observation, the proportion of workers over forty-five years of age was 3 per cent for the Austrians, Russians, and Poles; 4 per cent for the Italians; 11 per cent for the whites of American birth; 21 per cent for the colored; 23 per cent for the Irish; 25 per cent for the German; and 27 per cent for the English. Height ranged from an average of 65.5 inches for the Italians to 67.9 inches for the American whites, the order being Italians, Poles, Russo-Austrians, English, German, Irish, colored, and native white. The Poles, Russians, Austrians, and Italians were markedly heavier for a given height and age than the German, Irish, American, and English. Even the pulse rate showed marked racial differences, the Poles showing the lowest figure (80.3) followed by the Russo-Austrians, colored, English, Italians, Irish, American whites and Germans (83.3), the extreme differences though slight being well in excess of the probable errors.

1. Garments, glass, pottery, foundry, post office, steel, chemicals, cigars, guns, cements.

1. See review by Drinker, Thomson, and Fitchet, *Journal of Industrial Hygiene*, v.5, p. 15.

2. Headquarters, 28 Newbury St., Boston, Mass.

2. Presented by L. R. Thompson and R. H. Britten, Industrial Hygiene Section, American Public Health Association, Boston, Oct. 9, 1923.

Three Years of Student Health at University of Kentucky

What a Small University With a Limited Equipment Has Been Able to Do for Its Students

THE University of Kentucky has had, during the past three years, a department of student health. The personnel of this department consists of two physicians, a graduate nurse and a secretary, all on full time, serving under Dr. P. K. Holmes, director of the Department of Hygiene. A dispensary is maintained upon the University campus. It is open from 8:30 a. m. to 5:30 p. m. for the benefit of students and faculty. It was nearly a year before all the students in the various colleges knew of its whereabouts, and the extent of its service, but an increasingly larger number of students are availing themselves of its service each year.

As the function of the department is primarily prevention, serious and long protracted cases of illness have been cared for by local rather than by department physicians. As far as possible the work of the department has been confined to the campus and limited to regular office hours. It is very much worth while to educate students into coming to the dispensary for treatment for beginning colds, inflamed tonsils, slight wounds, headaches and such minor infirmities rather than through neglect of such conditions to over-look the early stages of serious, communicable illnesses. Students are also encouraged to come at any time to the department for advice as to how to avoid illness by healthful living. Such preventive treatment has served very effectually in checking serious illness.

During the first year of the department the men students made 1,533 calls and the women 835 calls at the dispensary, with a total of 2,368. The campus enrollment was 1,259. The number of faculty cases attended to at the dispensary and at home were women, 77; men, 21. There were two deaths during the college year, one from illness and one from drowning.

The total number of cases cared for by the resident nurse in the girl's dormitories was 844. Only six cases of the more common communicable diseases (mumps and chickenpox) were recorded during the year. A case of smallpox was detected in its early stages and all the students with whom the patient had come in contact on the day of the appearance of the characteristic symptoms, which numbered 182, were immediately vaccinated, with the result that no further cases developed. One hundred

third years the upper class women had to be omitted because of pressure of time. During the second and third years, in order to get through with the physical examinations more quickly four local physicians were added to the staff for part time. Students showing need of further attention have been summoned to the dispensary at the necessary intervals. Local physicians have cooperated with the department to the extent that students sent to them with a letter from the department were charged in proportion to their ability to pay; in many cases no charges at all have been made. A report of the examination is sent to the students' parents, one is given to the student himself, and another is kept on file in the office of the department.

The number of girls excused from gymnasium exercises as a result of excuses written by family physicians has been cut down by approximately 75 per cent. It has been the custom of many girls who have been disinclined toward physical exertion to ask their family physician for an

excuse, and in many cases such excuses have been written for no other reason than to please a patron. The Physical Educational Department, greatly handicapped by such measures, has heretofore been powerless to reject such excuses. With the department of health upon the grounds, no exemption from gymnasium work for physical disability is granted except through the University Health Department.

A Dental Clinic is conducted each year by a local dentist, under the direction of the department's resident nurse. Every student in the University is required to have his teeth examined and a record made of the findings. A card containing this record is given to the student, one is sent to the parents of the student, and one



The personnel of the Department of Hygiene, University of Kentucky. From left to right: Dr. Herring, Dr. Hunt, Miss Moffett, Dr. Holmes, Dr. McLean, Dr. Elliott, Miss Desha, Dr. Lipscombe.

thirteen vaccinations for typhoid prevention were given; twenty-five x-ray examinations for diagnostic purposes were made, and 131 individuals students were sent for treatment to local physicians with letters of introduction from the department.

During the second year of the department the men students made 2,851 calls and the women 689 calls at the dispensary, with a total of 3,540. The campus enrollment was: Men, 1,015; women, 464; or a total of 1,479. The number of faculty cases was 57 men. The total number of cases cared for by the nurse in the girl's dormitories was 1,659.

Every student in the University was given a physical examination by the department physicians during the first year. During the second and

is kept on file in the office. Those needing attention are followed up and urged to remedy the defects shown. As a result of the dental clinics, cavities have been reduced 35 per cent, diseased conditions of gums 66.6 per cent and general uncleanliness of teeth 16 per cent.

During the past year over 735 students have been enrolled in the various hygiene classes.

Eight hundred seven individual student conferences in reference to health (other than dispensary calls) were held with the members of the staff.

A weekly health article has been published by the department in the Sunday papers of the larger cities of the State for the past three years.

Last year twenty-nine addresses upon general health subjects were delivered in and out of the state.

A correspondence course in General Hygiene is offered to the teachers and others of the state. Four extension courses in General Hygiene, two hours a week throughout the year, have been conducted at different cities.

The first year's work of the Department of Hygiene and Public Health warranted its further existence. In establishing such a department the University has recognized instruction in health as a part of the regular program of education. It has for the first time in its history become responsible for more than imparting the regular class room instruction.

Nothing in the nature of an epidemic has occurred on the campus during the past three years. The number of acute contagious diseases has been very small. The absence of any considerable amount of serious illness upon the campus has been conspicuous. This has been due partly to the mild open winters of the past three years, but also very considerably to the work of the department. During the college year preceding the advent of the Health Department 7.7 per cent of all recitations were missed by students because of illness as against 4.1 per cent for the following. Last year it was 5.1 per cent. Twenty-four cases of acute infectious diseases were reported the preceding year as compared to six cases the first year of the department. It would be only fair to assume that quite a few cases the preceding year were unrecorded, owing to the absence of facilities for recording them. This would make the comparison even greater.

From the standpoint of imparting health knowledge for present and fu-

ture living, cutting down class room absences, preventing the spread of communicable diseases, lowering the cost of operating the University, lessening the burden of responsibility on the part of the officers of the University for the health of the students, diminishing physical morbidity and probably saving life, the department has been invaluable.

Educators are just waking up to the fact that our educational institutions must assume responsibility for



Dr. E. C. Elliott, chief of the Dental Clinic, University of Kentucky.

the health, social welfare, and physical education as well as for the mental education of the boys and girls who come to their doors. Therefore, the maintenance of an adequate department of Hygiene and Public Health is an absolute necessity.

This is not a record of anything at all unusual in university health organization but just a statement of what a small state university with very limited equipment is doing for its students when here-to-fore nothing at all of any importance had been done.

Examinations for Motor Drivers

No tests, medical or other, according to a current writer in the *Lancet*, can guarantee a fool-proof state of affairs, but much improvement in the accident potential of motor drivers in general can be effected through searching and stringent efficiency tests as a basis for the granting of licenses. Questions are often raised which even suggest the advisability of compulsory health certificates for motor drivers. "What, for instance," says the comment, "is the physician to

do who is consulted by an epileptic chauffeur?" If the chauffeur insists on continuing his employment, the physician is faced with the disagreeable alternatives of warning the chauffeur's employer or being held responsible for some fatal accident at a later date.

Le Scalpel recently made the recommendation to the Academy of Medicine in Paris that no motor driving license be given to anyone under the age of twenty-one; that chauffeurs suffering from faulty vision or hearing should be subjected to medical examination by a specialist every year; and that no license should be given to anyone without a medical examination in which the heart, the arterial pressure, and the functions of equilibrium and coordination have been found to be in good order.

The first of these considerations, it would seem, over-shoots the mark, for the simple reason that reckless fools remain reckless all their lives; the age of twenty-one is no deadline. Level headed persons are level headed in their teens. The other two considerations deserve serious attention. A recent serious accident was attributable to total deafness on the part of a driver. It might be well if such diseases as epilepsy, chronic alcoholism, and addiction to drugs were made disqualifications for driving licenses. A satisfactory medical examination is not, of course, a guarantee of physical and mental fitness; and it is obvious that a given driver may be physically and mentally fit to amble along at ten or fifteen miles an hour through a deserted lane who would break down in congested traffic.

The mounting death rate from automobile fatalities in the United States, apparently exceeding in 1923 the country-wide rate of 12.9 in 1922, demands attention to all the factors involved. Analysis of causes in the 1,501 automobile accidents in Massachusetts in 1921 places the responsibility on the driver in nearly 81 per cent of cases.

The Low Toxicity of Saccharin

A curious accident reported from Germany (*Münchener medizinische Wochenschrift*, Vol. 69, 1923, p. 968) suggests how slight is the danger from the quantities of this substance which might ordinarily be ingested in artificially sweetened foods. A boy of 9 years swallowed 200 saccharin tablets totalling 3.5 grams. He suffered from a brief loss of consciousness, hallucination, motor disturbances and acute urticaria but experienced a rapid recovery.

Practical Hygiene and Sanitation Dennison Manufacturing Co.

By HALSTEAD G. MURRAY, M.D., FRAMINGHAM, MASS.

THE following is an attempt to describe briefly some of the features of the medical, dental and sanitation work of the Dennison Manufacturing Company, Framingham, Mass. The total number of employees is at present about 3,200, of whom approximately half are women. The work done by women is, for the most part, of a light nature, practically all being done sitting. The work done by the men is of varied types ranging from very light work to extremely heavy work such as the trucking of heavy rolls of paper.

The main objective sought by the company through its health departments is the prevention of disease and accidents, thus helping to establish a healthier, happier, and more efficient working force.

Medical Department

Giving their whole time to the health work at the Dennison factory there is a physician, a dentist, and two graduate nurses as well as a stenographer. The clinic, or the dispensary, is centrally located and easily accessible to all employees. There are six rooms of good size, including a waiting room, a large room where accidents and minor ailments are cared for, a physician's private office for physical examinations and consultations, a dental clinic, a small rest room for the men and a large room attractively furnished with wicker chairs, couches and screens, for the women's rest room. There is also one other room, the nurses' room, and here women are given their physical examinations. It is furnished in the same style as the women's rest room and does not give one the feeling of being in a hospital. The women's rest room occupies approximately 924 square feet, while the rest of the clinic occupies about 1,728 square feet.

These rooms are fully equipped for any emergency that may develop during the course of the work and the

average daily attendance for surgical or medical care is 75 persons. The most frequent complaints are caused by headaches, colds, sore throats, conjunctivitis, boils, acne, dysmenorrhea, constipation and indigestion. During the course of the year many other minor ailments are cared for, but the above ailments are by far the most frequent. Those persons coming to the clinic for more serious ailments are examined and usually referred to their own physicians for further care and treatment.

An idea of the amount of work done

chief clerks, and department heads, totalling about 100, are given a physical examination about twice a year. For this latter group there is a questionnaire on personal hygiene, personal and family history, and a complete physical examination which includes urinalysis. Any employee who desires it may have a physical examination on request. The company maintains a fire department of its own, and these men also are examined annually.

The physical examinations given new employees are an effort to help the employment department place

men and women more efficiently with respect to the work to be done, as well as to advise these persons of their minor defects and what measures of correction should be taken. It also gives the examiner an opportunity to stress certain points on personal hygiene.

The basis for rejection is to exclude only those who would be considered a danger to their fellow employees or a danger to themselves if placed on certain types of work for which they are physically unfitted. In 1922 only 18 were rejected for the job for which they had chosen out of about 700 examined at time of employment.

During the same year seven of this number had their defects remedied and were given work at the plant. This is a very small percentage of rejections, but the work is so varied in this particular industry that it is comparatively easy to place persons who are not suffering from some very serious defect or disease.

The examination of persons transferred to different work in the plant is most important, as it is easily possible to place a man on work which might readily aggravate existing defects in his physical makeup.

Persons under 17 years of age are watched closely by two physical examinations a year, and more often if necessary. This is done chiefly be-



The Dental Clinic. This is a part of the medical clinic and comes under the supervision of the clinic physician.

by the clinic may be gleaned from the figures for the month of May, 1923.

During that month 1,874 treatments were given, 178 accidents were reported, and 264 physical examinations were given.

The following list shows the number of different common ailments treated during the month of May:

Coryza, sore throat and other upper respiratory affections	131
Digestive troubles	59
Headache	50
Dysmenorrhea	59
Conjunctivitis	22
Boils	6

All new employees are given a physical examination before being put to work, as are also all employees transferred to a different type of work. All persons under 17 years of age are given a physical examination twice a year. A group of foremen,

cause these young people do not have the usual medical care and observation afforded by most public schools and to make certain that the work they are doing is not interfering with their normal development. We have been able to get these young persons to have many of their minor defects corrected, such as defective vision, poor teeth, bad tonsils and adenoids, and in some cases they have had hernias corrected by operations with much benefit to themselves.

There are several known cases of arrested tuberculosis in the plant. These are followed up every four months at the present time. With our lung cases we are fortunate in having the consultation services of the Community Health Demonstration, an experiment being carried on in Framingham under the direction of the National Association for the Prevention of Tuberculosis. This has been of great value to us.

Education

An article on Health and Disease appears in each issue of "The Round Robin," which is published once a month and given to every employee. The bulletin boards are used at various seasons of the year in an effort to instruct the people how such common infections as grippe, colds, sore throat, etc., may be guarded against. Talks have been given to the members of the Mutual Relief Associations and at foremen's meetings on such subjects as physical examinations and accident prevention. The factory library and the circulating bookcase, which moves from one department to another until the plant is covered, contain books on health which have been written for the lay public. These books are called for as much as any one type of book.

Two Other Features

Not the least of the medical services offered is what is called the "Nutrition Class" and the "Posture Training."

The Nutrition Class is made up of girls who are "run down" below par, convalescing, or more than ten pounds under weight. This group is given ten minutes mid morning and afternoon rest periods and are supplied with a ten-ounce glass of malted milk or plain milk. This work is under

the supervision of the nurses. Each girl has a physical examination before joining the class, with a talk by one of the nurses regarding her living habits and diet. These girls have averaged a gain of three pounds per month and have showed other signs of improvements in health.

In the Training Division or school, of the factory, where most of the women workers are taught the work before going out into the producing departments, we have one of the nurses spend a few hours each week instructing the new workers just how to use the adjustable factory chairs and how to sit at their work properly. The work is being extended to the producing departments for the older

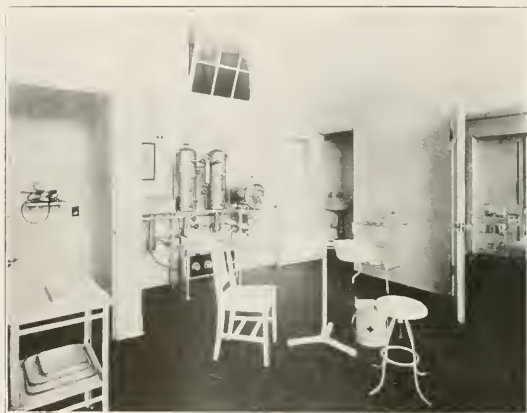
common injuries which we have.

Among those injured in the factory during 1922 we had no infections resulting in any time lost from work among any of those who reported for treatment on the day of the injury. This shows the value of early treatment of all injuries no matter how trivial. Of those not reporting to clinic on day of injury we had 79 infections. Six of these had a total lost time of 76 days.

All injured persons who are able to be about or who do not live in outside towns are treated at the factory if able to work, whether they were injured outside or inside the factory. The routine treatment of minor injuries has been cleansing the wound with applications of 3 per cent tincture of iodine, sterile vaseline and gauze dressing.

Dental Clinic

The number of persons found with defective teeth, was so great and systemic effects of bad teeth are often so serious that the company decided to install a dental clinic with a full time dentist in charge. A complete dental unit was installed and the work is done on a cost basis except for emergency work, which is free of charge. The dental clinic has been in use for about one year and the dentist has been kept busy



The Medical Clinic. In this room accidents and ailments are treated. On the left is the coryza closet and on the right the doctor's private office.

employees. Posture plays a large part in fatigue and is a very important part of health supervision in industry.

There is a Safety Inspector who supervises and plans the safety work. Many safety devices are suggested through the Factory Suggestion System, and through the Committee on Health and Safety, composed of two members of the management and two members of the Factory Works Committee. There is also a Safety Committee composed of the Safety inspector, plant physician, and four workers from the factory whose term of office is four months, when four new men are asked to serve. These four workers cover the entire plant once a week on a safety inspection and report findings to the Safety Inspector. Education in regard to safety is carried on continuously. Each new employee is instructed regarding any dangerous parts of his machine or job and given a booklet on safety which tells how to avoid the most

every day.

The work is limited to extractions, fillings and prophylactic work. The employees make appointments through their foremen or Works Committee Representative. The appointments are usually for a period of thirty minutes or longer if the dentist desires it. Employees lose time while in the dental clinic and pay for cost of material used and 75¢ per half hour for the dentist's services. The dentist is paid a straight salary by the company. The following will give an idea of the work done during the first six months after the dental clinic was installed.

Total number of visits.....	1,163
Total number of extractions.....	156
Total number of cleanings.....	239
Total pyorrhea treatments.....	15
Total emergency treatments and other treatments.....	607
Total devitalization.....	18
Total amalgam fillings.....	359
Total root fillings.....	47
Total synthetic fillings.....	180

Total cement fillings.....	32
Total gold inlays.....	9

Lighting and Eye Conservation

All new employees are given tests for distant and near vision, if errors of refraction are found, they are told what the results may be if these errors are not corrected and retinoscopic examination is made at this time. Corrective lenses are placed in the trial frame to show the improvement in vision by having proper glasses. This helps considerably to influence the new employees to obtain suitable glasses. On certain types of work persons with defective vision are required to have suitable glasses within two weeks after employment.

The natural lighting of all rooms is good and the artificial lighting is of the latest type with a general average of four-foot candle meters throughout the plant, and on special work the number of foot candles run as high as sixteen. The arrangement of the lighting system keeps glare and shadows to a minimum.

Sanitation

The sanitary arrangements are carried into effect by the engineering de-

partment in cooperation with the plant physician.

The toilet and washing facilities of course comply with the state laws relating to these subjects, and in most departments the facilities are far beyond any legal requirements. Individual paper towels are furnished to each employee, also liquid soap. Dressing rooms and shower baths are provided for those whose work is of such a nature that a daily shower bath is necessary from a standpoint of health and cleanliness. Such a place is the foundry where the electrotype work is done. Dusty processes where fumes might be a hazard are carefully protected. Sanitary drinking fountains are well distributed throughout the plant, the water being cooled with ice from May 1 to October 1 each year. Damp sawdust is used by all sweepers to keep dust to a minimum and much of the sweeping is done after working hours.

All of the features of the medical, dental and sanitation work have been put into effect not from any paternalistic spirit but because the management after thorough consideration fully believes that such work pays large dividends, keeping the employees contented and efficient.

Relation of Laboratory Aids to Practice of Medicine

THE development of laboratory aids to diagnosis is reviewed by Lewis A. Conner, (*Journal A. M. A., Sept. 15, 1923*). The rapid increase in the number and in the complexity of the laboratory aids has been associated with a profound change in the character of the instruction given to our medical students. The work required in physiology, in biologic chemistry, in bacteriology and in immunology has increased by leaps and bounds because of the ever growing application of these sciences to the clinical branches; and the additional time needed for these basic sciences has, to some extent at least, been taken for that formerly allotted to the more strictly clinical study of patients. The increasing emphasis laid on these rapidly developing laboratory methods has changed in some degree the attitude of the student toward clinical medicine. The so-called "exact" methods of investigation seem much more important and much more satisfactory than the less tangible and less "exact" study of the patient him-

self and of the history of his illness. The making of a Widal test appears so much simpler and more convincing a method of establishing the diagnosis of typhoid than a painstaking analysis of the patient's history and a thorough physical exploration; the reading of a roentgenogram of the chest seems such a refreshingly short cut to the diagnosis of pulmonary tuberculosis; the electrocardiogram demonstrates so readily, and with such a saving of intellectual effort, the existence of, say, a two to one heart block, that it is not to be wondered at that most medical students and interns should now leave the hospital wards and go out as practitioners imbued with the feeling that all these laboratory and instrumental aids are a necessary and indispensable part of their professional equipment. They have come to lean on these more heavily than on the more strictly clinical methods of examination. This attitude on the part of the well trained young practitioner has been perhaps the most important single

factor in deciding to shun the rural districts and smaller towns in choosing the location for his practice. However, it is only by the help of these laboratory aids that modern clinical medicine and surgery have made, and will continue to make, their chief advances. But the indiscriminate application of many of the more complicated and delicate of these procedures to the individual problems of the practitioner is not necessary and will often serve to confuse rather than to clarify the issue. The special field for such tests lies in their application to the problems of clinical research, as these are carried on in thoroughly equipped hospitals, manned by highly trained and carefully chosen workers. Under such circumstances these tests are invaluable in bringing to light new clinical features or in making more understandable those already known. Connor pleads (1) for greater attention on the part of teachers to the need of establishing in the minds of students a truer perspective of the proper relationship between laboratory aids and the older bedside methods of clinical study, and an appreciation of the importance of acquiring skill in the latter methods; (2) for a sense of greater responsibility on the part of the general practitioner for the trustworthiness and accuracy of the tests employed by him and for a proper understanding of the principles; the significance and the limitations of application of such tests, and (3) for an effort on the part of all of us to resist and counteract the growing inclination to regard the use of laboratory and instrumental aids as the chief means of diagnosis and to give too little weight to the more laborious but more important measures of painstaking clinical observation and careful deductive reasoning.

Insurance Contributes to Public Health

Two hundred ninety-two life insurance companies in the United States disbursed in 1921 a sum approximating ten million dollars to physicians for medical examination of life insurance applicants. The scientific value to medicine of opportunity to examine large numbers of presumably physically unimpaired persons is very great, and even greater from the public health viewpoint is the value of the service of many life insurance companies of extending free of cost to policy holders, the privilege of periodic health examination.

Annual Meeting of the American Public Health Association

THE Fifty-second Annual Meeting of the American Public Health Association was held in Boston, October 8 to 11, under the presidency of Dr. E. C. Levy of Richmond, Va., with more than seven hundred persons in attendance. Detroit was selected as the meeting place for 1924. Officers for the ensuing year were elected as follows:

President, W. H. Park, M. D., director, Bureau of Laboratories, New York City Health Department.

First vice-president, Francis X. Mahoney, M. D., commissioner, Boston City Health Department.

Second vice-president, J. W. S. McCullough, M. D., commissioner, chief officer of health, Province of Ontario.

Third vice-president, W. H. Davis, M. D., chief, Division of Vital Statistics, Bureau of the Census, Washington, D. C.

Treasurer, R. I. Lee, M. D., professor of hygiene, Harvard University.

Secretary, James A. Hayne, M. D., commissioner of health, South Carolina.

Members of executive board, H. F. Vaughan, Detroit, Mich., M. P. Ravenel, Columbia, Mo., and E. C. Levy, Richmond, Va.

Section Officers, 1923-1924.

Laboratory—Chairman, A. P. Hitchens, M. D.; vice-chairman, Benjamin White, Ph. D.; secretary, J. F. Norton, Ph. D.

Public Health Administration—Chairman, C. C. Slemons, M. D.; vice-chairman, C. V. Craster, M. D.; secretary, Stanley H. Osborn, M. D.

Vital Statistics—Chairman, W. J. V. Deacon, M. D.; vice-chairman, Stewart Thompson; secretary, John O. Spain.

Sanitary Engineering—Chairman, H. A. Whittaker; vice-chairman, Langdon Pearce; secretary, George W. Simons, Jr.

Industrial Hygiene—Chairman, C. E. Ford, M. D.; vice-chairman, H. F. Smyth, M. D.; secretary, E. R. Hayhurst, M. D.

Food and Drugs—Chairman, W. D. Bigelow, Ph. D.; vice-chairman, H. W. Redfield; secretary, James O. Jordan.

Child Hygiene—Chairman, Taliaferro Clark, M. D.; vice-chairman, Charles H. Keene, M. D.; secretary, C. E. Turner.

Health Education and Publicity—Chairman, H. E. Kleinschmidt, M. D.; vice-chairman, B. R. Rickards; secretary, Marjorie Delevan, R. N.

Public Health Nursing—Chairman, Margaret K. Stack, R. N.; vice-chairman, Mary Laird, R. N.; secretary, Agnes Martin, R. N.

Among the resolutions adopted

which dealt with matters of broad general policy were the following:

Whereas, The periodic physical examination of apparently healthy individuals is the keystone of personal hygiene and one of the most valuable methods of fostering general public health;

Therefore be it resolved, That the American Public Health Association urges all citizens of the countries represented by its membership to have such annual medical examinations made;



William Hallock Park, M.D., L.L.D., the newly elected president of the American Public Health Association is professor of bacteriology and hygiene, University and Bellevue Hospital Medical College. He has been director of the New York Health Department Bureau of Laboratories since 1884. Through his pioneer work in the up-building of the New York City laboratories Dr. Park has exercised greater influence than any other living man upon the development of the public health laboratory in America, and his contributions to science have made him one of the leading authorities of the world in regard to the bacteriology and serology of diphtheria.

And be it further resolved, That the American Public Health Association indorses the campaign for Health Examinations now being conducted by the National Council.

Resolved, That the American Public Health Association confirms its belief in the value of, and the need for, a program of health examination and health supervision of all school children, which program should include health education and training in both health habits and physical activities.

That the A. P. H. A. favors the placing of the regular sanitary engineers of the U. S. P. H. S. on the same commissioned status as the regular medical officers in that service and

therefore authorize the appointment of a committee to act for the association on this matter and not to cooperate with similar committees of the Federated American Engineering Societies and of the A. S. C. E.

At the first general meeting of the association the delegates were welcomed by the Hon. James Jackson, treasurer of the Commonwealth of Massachusetts, representing the State, by his Honor, Mayor James M. Curley, and Dr. F. X. Mahoney, health officer of Boston, representing the city, and Dr. D. L. Edsall, representing the Harvard School of Public Health. Addresses of response were made by Dr. C. V. Chapin on behalf of the delegates from the United States and by Dr. Peter H. Bryce, on behalf of the Canadian delegates. Cuban and Mexican representatives, so prominent in the past, were unfortunately absent this year. Dr. Levy's presidential address dealt with the reciprocal relation between the health officer and the physician and emphasized the importance of a mutual comprehension and a close cooperation between these two groups.

The association entertained a distinguished guest in the person of Sir Thomas Oliver, pioneer in British industrial hygiene, and at the second general session Sir Thomas recounted his early investigations on lead poisoning at Newcastle and in Hungary and on "phossy jaw" in London, which have proved so basic in the modern control of industrial poisonings. He commented on the progress made in the United States in this field since his last visit to the country in 1912 and particularly on the growth of industrial medical service in which America has surpassed Great Britain and emphasized fatigue as a problem of industrial hygiene and the importance of abolishing the twelve-hour shift, and relieving monotony of work by every possible means. Dr. L. R. Williams of the National Tuberculosis Association spoke on coordination of national health work, defining

the objective of the voluntary health agency as the stimulation of official leadership and the mobilization of proper cooperation. He recounted the remarkable achievements of the National Health Council in coordinating the work of the various voluntary national health agencies and urged further progress along this line. Dr. G. E. Vincent, president of the Rockefeller Foundation, in speaking on "Weighing the Ounce of Prevention," made one of his inimitable addresses which kept the audience in uproarious delight and yet lodged with complete effectiveness the serious message that we must strive to let the public comprehend the real significance and limitations of medical science, and must furthermore formulate clearly the relative values of various types of public health activity.

The public health administration section opened with an address by the chairman, J. W. S. McCullough, on "The Full Time Health Officer." In the course of the discussion it was pointed out that the full time health officer is only the first step toward effective service, since he can accomplish little without staff and appropriations. The full time health department *must be our ideal*. C. E. Turner presented the report of the committee on standardization of public health training, reviewing the advanced degrees in public health granted during the past year and also presenting a special study of the courses in public health offered to medical undergraduates in the leading schools of the United States.

At the second meeting of the section C.-E. A. Winslow presented the report of the committee on municipal health department practice (see editorial discussion, p. ...) and M. P. Horwood described his recent tuberculosis survey of Philadelphia. This survey has already led to marked progress in the creation of a new division of tuberculosis under the municipal health department, the assumption by this division of the direction of the clinics hitherto maintained by the state and the development of an industrial program under the guidance of the local Health Council.

At the third session a most enlightening symposium on the health department of the small community was presented under the leadership of G. C. Ruhland. I. V. Hiscock presented a study of the organization of twenty-one health departments in Connecticut cities of about twenty thousand population, showing a total per capita expenditure by official and unofficial

health agencies of \$0.52 (\$0.19 by official agencies). A special study of five selected cities in different sections of the country having particularly good organization showed a total expenditure of \$1.22 per capita (\$0.85 by official agencies); and an ideal program suggested by Professor Hiscock calls for an expenditure of \$1.90 per capita. W. H. Brom emphasized the importance of surveying the work of all official and unofficial agencies bearing on child hygiene and the formulation of a constructive program for the future. I. D. Rawlings described the practice in Illinois of permitting modified quarantine to be used in small communities when, and only when, these communities have the machinery to make modified quarantine effective. M. N. Baker emphasized the importance of securing engineering advice in regard to refuse disposal and urged the value of simple methods such as burial and particularly the feeding of garbage to hogs. Donald B. Armstrong presented the National Health Council campaign for health examinations and W. G. Exton the work of the Prudential Life Insurance Company along this line.

At the final session of the section Eugene R. Kelley, in a paper on the public health administrator's relation to the cancer problem, said that there is a glaring lack of decent facilities for the care of cancer patients, the district nursing association being often the only agency which attempts to mitigate the sufferings of these unfortunates. The provision of means of early diagnosis is clearly the health administrator's job, but even with this provided there yet remains the task of educating the physician to its use. Popular information regarding cancer is not yet out of its swaddling clothes; the great majority of small private or semi-private hospitals are not alive to their responsibility, and few have any pathological service. L. I. Dublin asked that cancer be made a reportable disease and Dr. Chapin suggested that during "cancer week" this year the inauguration of such activity by every health department as its contribution would be of immeasurable value.

Francis McCloskey read a paper on the application of the practice of office business and routine to health departments. The value of interdepartmental conferences at regular intervals was emphasized as well as the folly of delegating authority to department heads and then attempting detailed control by the chief administrator. It is important to remember that the public's reaction to a health

department is largely determined by contact with its subordinate employees.

"Nuisance Prevention, a Hindrance to the Prevention of Disease," was the title of a paper by Charles V. Chapin. Pointing out the many untouched fields of health work that are crying for attention, Dr. Chapin declared that nuisance prevention does not pay. In the eighty-three cities surveyed by the committee on municipal health department practice about \$2,800,000 was spent for sanitary inspection. The public still believes that all dirt is dangerous and that odors are deadly, but a dead cat on the street does not cause diphtheria and an uncovered cesspool is a cause of death only by drowning. In Providence, with a population of 250,000, only half the time of one inspector is now devoted to nuisances, and nuisances of no health menace are nominally cared for by the police.

A lively discussion followed, in which it was generally agreed that the city health department wasted a great portion of its appropriation in abating nuisances to the eye and nose, which have no bearing on the community health. In rural regions, particularly in the hookworm zone, the insanitary privy is a nuisance of great importance. It was also suggested that as long as the public continued to look at the abatement of nuisances as the chief function of the health department it would be necessary to devote time and money to the continuance of this activity in order to secure popular support.

W. F. Snow presented the report of the committee on venereal disease, which showed that court decisions have tended to uphold the health officer in dealing with the venereal infections as with any other kind of communicable disease. All persons known to have been exposed or reasonably suspected of infection should be examined, and those convicted of sex offenses can reasonably be suspected.

Isaac D. Rawlings presented a paper and also read one for Herman N. Bundeson dealing with the rules and regulations and standards of infectivity and laboratory methods in force in Illinois and the city of Chicago which have made possible the accomplishment of a large amount of work. Dr. Dixon expressed his opinion that police methods are not good in the control of the venereal diseases, stating that in Detroit while ninety cases per month were brought in by the police, ten thousand came voluntarily to clinics.

The laboratory section held three

sessions with papers of particularly high quality. Among those of special importance at the first session may be mentioned a discussion of administrative problems of the public health laboratory by L. C. Havens which contained many good practical hints, a report by Max Levine and C. S. Linton on progress in the differentiation of *Baerogenes* strains from soil and feces, and a fascinating address by R. P. Strong in which he described a flagellate parasite—a *Euphorbia*—which he believes that he has also isolated from a hemipterous insect feeding on the *Euphorbia* and from a species of lizard found in the vicinity. In one case he even believed that the injection of the flagellate from the lizard produced a local infection in the monkey.

At a second session E. O. Jordan reported on behalf of the committee on standard methods, the only final and definitive action recommended, being the acceptance of the U. S. Public Health Service method of testing disinfectants in place of that formerly set forth by the A. P. H. A. Leonard Greenburg described the impinger, a new device for sampling atmospheric dust which is far more effective than the Palmer apparatus, giving 96 to 98 per cent of the total dust present (as shown by optical methods) in the case of silica and 66 per cent of the smoke particles in the case of tobacco smoke.

At a third session C. C. Young and R. L. Kahn reported favorably on the use of the Kahn precipitation method on the basis of 58,000 tests and P. K. Olitsky and J. E. McCartney described an important series of experiments on the etiology of the common cold. They believe that two distinct types of cold exist, one communicable and the other non-communicable, and have succeeded in transmitting the former type in a clear filtrate from the mucous secretions of early cases. Neither *B. pneumoniae* nor the globoid bodies of Foster are indicated as the causative agents.

A striking report was presented by F. W. Sears on the progress of diphtheria immunization at Auburn. In the year before his campaign began 22,438 school days were lost as a result of diphtheria, equivalent to a waste of \$10,860 worth of educational facilities. After the campaign the time lost on account of diphtheria involved a money loss of only \$500. W. H. Park and E. J. Banzhof made a final report on the relation between toxicity and immunizing value of T A mixtures. M. C. Schroeder discussed the duration of immunity, with and

without the repeated stimulation of the Schick test, and Benjamin White described the reactions obtained among different groups of the Massachusetts population. The net results of this discussion, which proved to be one of the most important of the convention, were to demonstrate that immunity against diphtheria varies with density of population and consequent opportunities for exposure (Boston schools 50 per cent immune, remote towns and certain private schools none immune); that it is affected by race stock, Italians showing relatively low immunity; that immunity, whether due to infection or artificial immunization, lasts at least five years; that Dr. Park's .1 L + treatment is highly efficient and free from objectionable reactions; that English studies on immunization by the use of toxoids deserve careful consideration; that immunization by private physicians before children enter school should be urged as strongly as possible but that Schick-testing should generally be done by public officials experienced in this particular technique.

Vital Statistics

The opening address before the vital statistics section was a preliminary report by Frederick L. Hoffman of an investigation of health in the printing trades, directed by Dr. Hoffman and sponsored by the Joint Council of Employers and Employees with the cooperation of the Bureau of Labor. It represents the largest voluntary investigation heretofore undertaken within a single industry. The mass of data is so great that another year will be required for its complete analysis by occupations within the industry.

Partial analysis now completed is convincing of wide prevalence of extensive impairment of eyesight. It is not easy to differentiate what health influences are significant, on the chemical side particularly, but it is clear that compared with thirty years ago working conditions have improved enormously as regards dust and fume removal; that predisposition to tuberculosis said to exist in England does not prevail here; and that health conditions are on the whole good. William H. Davis, in a paper on public health in Boston, brought out carefully weighed evidence that health effort in Boston looking toward maternal welfare must be specifically directed toward the care of mothers born in Ireland, owing to the relatively high mortality of mothers of this race. The significance of the facts was further emphasized by Louis I. Dublin's

studies contrasting maternal mortality figures in Ireland with those of the Irish born who have come to the United States.

An important move toward simplification of statistical record through the evolution of a standard shipping permit for the transportation of dead bodies was made when the preliminary investigations undertaken by an Illinois group, headed by Sheldon Leavitt Howard, were referred to a committee to report to the Vital Statistics section in 1924. It was made evident that needless hardships and excessive costs are imposed by sanitary requirements based upon archaic notions of communicable disease hazard involved.

By far the most significant discussion before the section had to do with the importance of contributory causes of death, for the primary cause—nephritis, cerebral hemorrhage, or heart failure—may be a manner of dying and not a guide for disease prevention. Even an associated disease—such as measles connected with the accidents of pregnancy—may be of far greater moment to the epidemiologist than the primary cause of death. Louis I. Dublin handled this subject and pointed out the discrepancies in existing practice. It is especially significant that alienists derive slight benefit from statistics because mental disorder is successfully concealed by current records. The requirements of preventive medicine will be better served when the committee delegated to this task can work out titles and sub-titles that admit of better interpretation in rheumatic endocarditis, malarial hepatitis, diabetic gangrene, syphilitic rheumatism, and other such conditions.

John O. Spain further illuminated this subject by showing the difficulties of assignment through the increasing percentage of joint causes of death. The joint cause, such, for instance, as influenza in pregnancy, may account for as much in either direction as one-third of the normal rate. The whole matter was referred to a committee of seven for elucidation.

Charles V. Craster presented figures showing a curious distribution of heart disease by states, not explainable on the basis of causes usually assigned. Recent interest in this subject has developed the facts that many more hospital beds are needed for these patients than any community has provided; that clinical study of such cases is lacking because heart patients are everywhere sacrificed to more urgent conditions; and that curative measures are almost at a standstill. Rheu-

matism was assigned as the chief causative factor.

Gaius E. Harmon developed a study of the course of mortality from puerperal septicemia during 1920-21 showing that (1) the moving average reveals a five-year cycle; and (2) all states show a significant decline since 1909.

Before a joint session of the Public Health Administration Section with the section on Vital Statistics, James A. Tobey discussed the coordination of public health laws in the United States. The need seems to be for better rather than more laws. A model state health code is needed and should be worked out. The organization of a bureau to collect present state laws and to present them in an accessible and comparable form would be of great value as a preliminary study to the formulation of a model code.

A paper on the elements of a complete morbidity and mortality report was read by Haven Emerson in which it was urged that the present flood of reports abandon the crude and adopt standardized rates; that reductions in mortality be always presented by age groups; and that data be presented in more detail as to sex, race, etc.

At a final section devoted to epidemiology, the most important papers were presented by Norman Lothian, field epidemiologist of the Health Section of the League of Nations, who described a noteworthy service now rendered by the section through its publication of epidemiological intelligence; and by Millard Knowlton and I. V. Hiscock, who reported on the recent outbreak of amebic dysentery at Ansonia, Conn.

Sanitary Engineering

Following opening remarks by the chairman, Kenneth Allen, the first meeting of the section on sanitary engineering was opened by George A. Soper, who presented a progress report of the committee on air, and suggested that a report outlining the needed work along these lines and summarizing the information at present available, should be published by the association.

L. E. Jackson recounted the progress of anti-mosquito work in New Jersey, where ten counties have expended three hundred thousand dollars in combating the salt marsh mosquito problem. As a result, the work of drainage is about half completed with a total at present of five thousand miles of ditches. Recently much of the ditching has been done with machinery and work is in progress on

new types of machines for digging as well as cleaning the drainage ditches. If the new type of digging machine now under construction proves as efficient as indications promise it will be possible to complete the five thousand miles of ditch still needed in about a year. The new machine will ditch at a cost of less than one-tenth of a cent per linear foot.

The speaker continued by discussing the work done in Hudson County by the use of dykes and pumps to control the mosquito problem over large areas that average a foot less in elevation than the mean low tide. Electrically driven centrifugal pumps are employed to raise the water from the ditches draining the area surrounded by dykes. The combined average capacity of a ten and a twelve-inch pump averages four thousand gallons per minute, the cost being in the neighborhood of thirty-five cents per hour. Mr. Jackson also stressed the need of a cheap and effective larvicide.

The report of the committee on bathing places, presented by George W. Simons, Jr., aroused much interesting discussion. The report recounted the progress in state legislation dealing with these matters and proposed certain standards for the control of swimming pools, based on the amount of excess chlorine and the reaction and clearness of the water, maximum bathing load, temperature, and bacterial count. The advisability of fixing any *Bacterium coli* standard was seriously questioned in the discussion. It was pointed out that health problems associated with swimming pools are in large part related to infections of the eye, ear, nose and throat; that the so-called filth diseases related to the usual use of *B. coli* standards are rarely if ever spread through the water of bathing pools; and that a standard based on the count of organisms producing infections of the eye, ear, nose and throat is the only logical method of control. This latter method is, however, practically impossible at present, due to the difficulties involved in the bacteriological technic required. In Florida it has been suggested (though not made compulsory) that all bathers either wear a bathing cap to protect the ears or use a cotton plug saturated with petrolatum. It is thought that such measures will aid materially in reducing the number of ear infections.

J. Waldo Smith presented a paper on the Becari system of garbage disposal. An eight-cell unit of this type will soon be put in operation at Scarsdale, N. Y. (A general historical and

descriptive article dealing with this system was published in THE NATION'S HEALTH for August, 1923.)

The next paper was by G. W. Fuller and was an account of his observations on European methods of refuse collection and disposal. Following this, Mr. Fuller read a report of the committee on water supply. The use of iodine in the water supply at Rochester, N. Y., as a preventive measure directed against the occurrence of endemic goiter was mentioned as a new development in water supply. (THE NATION'S HEALTH will in the near future present a paper dealing with this development.) Superchlorination to prevent tastes and odors seems to be on the increase. Dechlorination is not popular, apparently because of the added complexity and labor that it introduces. There is obviously considerable advantage in making water inert in relation to pipes and considerable interest has been shown in this problem. In England the hardening of soft, peaty waters seems to be on the increase.

At a final session Langdon Pearse presented a report of the special committee on sludge disposal. This report was a distinctly optimistic one for, although few statistics were presented in regard to the benefits occurring from the use of activated sludge, the report clearly showed that farmers are in the market for activated sludge for fertilizing purposes. That hopes may be entertained for much information in the near future is at once evident since Milwaukee, Chicago, Baltimore, Rochester and Houston are experimenting with activated sludge for fertilizer, as is also the National Fertilizer Association.

G. W. Fuller, in a discussion of this report, described a filter known as a stream line filter which he had seen this summer while abroad which was highly effectual in filtering finely divided colloidal material. It was suggested that this filter might be developed for sludge drying purposes. Mr. Fuller said that by its use sludge could be reduced to a water content of 60 to 70 per cent.

W. H. Frost described studies conducted by the United States Public Health Service on the pollution and natural purification of streams. These studies, which were made on the Ohio and Illinois rivers, were conducted chiefly to ascertain the relation between the degree of stream pollution as shown by laboratory tests and those obvious contributing factors as shown by field surveys. Studies of agar counts at 37 degrees showed marked seasonal variations, the

counts being from ten to twenty times as high in summer as in winter. Dr. Frost is of the opinion that actual bacterial multiplication may take place in the sewers and streams in the summer as well as mechanical breaking up of solids, which might also tend to increase counts.

Counts of the number of organisms made at various points along the Ohio River below Cincinnati's outlets showed that the counts were not at a maximum directly below the outfall but that there existed a phase of increasing counts during the first 10 to 15 hours after sewage enters the river.

The comparison of the curves of bacterial counts for the two rivers indicated that any general law of bacterial death rates in streams will have to include the initial density of bacteria as well as time and temperature among the variables to be considered.

Food and Drugs

The most active development in any branch of public health during the past five years has perhaps taken place in the field of nutrition. Knowledge has vastly increased in regard to foods and drugs, said W. H. Lipman before the food and drugs section, but along with precise study of protein values and vitamin content has come the danger of exploitation of food and beverage fakirs, dietary faddists, glandular panaceas, and the like. Is there no limit to human credulity in regard to false claims for food and drugs? It would seem not, according to Dr. Lipman's examples of flagrant abuses in this field. Education and still more education is the remedy.

An important report was rendered by the committee on problems of canning. A study period of five years has been given to tin plate. Increased coating has proved a distinct advantage for acid fruits and for foods to be kept long in storage. Variations in the composition of steel have been without result, but much progress has been made in processes to eliminate the presence of oxygen, and in handling to prevent deterioration. Reference was made to difficulties arising from a recent order prohibiting in interstate commerce the return of spoiled goods.

The clinical effects of the so-called "moonshine" liquors were treated in a paper by Francis J. Gerty. The type of present poisoning was stated to be alcoholism of an aberrant type; the somewhat different series of symptoms being due not to the toxicity of fusel oil contained in the liquor but

rather to acetaldehyd. Poisoning is very rapid and as a result the patients reach the hospital before exposure is sufficient to predispose to pneumonia. There have been as many cases of alcoholism in the Cook County Psychopathic Hospital during the first ten months of 1923 as were recorded for the entire year of 1922, and alcoholism is now as prevalent as it was before the war and prohibition. Involvement of the kidney and delirium tremens are much less frequent but mental deterioration is common after one or two sprees. The acute cases do not commit crimes for, even when violent, their actions are nonpurposive and the patient can be controlled by those who are familiar with the methods of psychopathic hospital supervision. Cases of delusional insanity frequently result from chronic moonshine alcoholism and it is among the members of this group that criminal acts are committed.

Samuel C. Prescott read a paper on the use of carbon dioxide in foods, in which he stated that fruit and fruit juices were preserved for a much longer time in an atmosphere of carbon dioxide than in an atmosphere of sterile air, though this gas could not be considered a perfect food preservative. The preserving action on protein was similar to that observed with fruits, though to a less degree. It was stated that carbon dioxide offers great possibilities in the manufacture of butter and ice cream and that a good product tastes better in the presence of carbon dioxide but a poor one tastes worse.

A most interesting study of the absorption of *botulinus* toxin was recounted by J. C. Geiger. The investigation was started by the receipt of a sample of home canned corn suspected as the cause of a fatal case of botulism. Examination proved the sample to be the most toxic one ever examined. A letter was then written to the official forwarding the corn for examination and it was found that he had since died of botulism. Since it was not known that this official had either purposely or accidentally ingested any of the sample and epidemiological evidence had previously caused a suspicion that botulism might be contracted by means other than ingestion, animal experimentation was inaugurated for the purpose of studying absorption of the toxin. It was determined that fatal infections of botulism might be caused by absorption through breaks in the skin. The findings indicate that fatal infections gained in such a way might occur in man, though the epidemiological evidence

would indicate that they are comparatively rare.

At the final session of this section, Graham Lusk argued for common sense as well as science in control of the dietary. While meat added to the daily ration of the Italian peasant greatly increases his efficiency, muscular tone does not suffer in those Oriental races who subsist without it. The utilization of the unpalatable German war bread was not aided by a supplementary meat ration. Even dirty conditions of the food and maldorous surroundings are not of themselves conducive to failure in nutrition. "What a man likes best he digests best," said Lusk, and "given a sufficiently wide range of choice, the average individual may be trusted to make a satisfactory selection of food."

Naturally, the results of precise studies on the values of minute quantities of such mineral components as calcium and phosphorus by H. C. Sherman brought out interesting discussion, that while other inorganic substances such as iron and iodine call for future study, the case of calcium and phosphorus is fully briefed. A food supply that is safe should contain of calcium a little more than 0.01 of the protein requirement, and 0.88 gm. of phosphorus per day per kilogram of body weight, the proportion being the same for men and women. Both city and country dietaries are low in calcium. In fact, the average American dietary is short 1 per cent in protein, 4 per cent in phosphorus, and 3 per cent in calcium requirement, stated Dr. Sherman, and calls particularly for the addition of milk and leafy vegetables.

Industrial Hygiene

E. R. Hayhurst, in opening the meetings of the industrial hygiene section, made a plea for the expansion of medical service in industry, stating that less than 5 per cent of the industrial workers of America now have the benefit of systematic medical advice. G. M. Price described the work carried on by pressers in the garment trades as being less skilled than that carried on by clothing operators but more fatiguing, due to the lifting of the heavy pressing irons. These workers suffer mainly from the effects of heat, humidity, carbon monoxide, and prolonged standing. Only robust men usually enter this portion of the industry and the results of Dr. Price's physical examinations revealed the fact that the men in general are in good physical condition. They suffer mainly from bronchitis, gastritis, and infections. The disability rate from

neurasthenia is found to be rather high, 1.9 per cent, and of defective vision, 1.76 per cent. The incidence of tuberculosis was 1 per cent, a figure somewhat lower than that (3.1 per cent) found by Schereschewsky in his study of the garment trades (1915). A contribution of the very first importance made by L. R. Thompson and R. H. Britten on standards of measurement of ten thousand male workers is discussed editorially on another page of this issue.

At the second session particularly keen interest was aroused by B. L. Wyatt's paper on "The Economics of Health Supervision in Industry." Dr. Wyatt stated that health supervision in industry should produce results that will justify the operating overhead in order to add stability and permanence to such supervision; he then discussed the economics of health supervision with an attempt to evaluate the chief factors concerned. Obviously certain factors such as increased production, increased efficiency, diminished urgent claims for compensation, etc., cannot with ease be financially evaluated. Lost time—which is the measure of safety work—may be reduced as much as 95 per cent; a 50 per cent reduction is a conservative estimate. The return from first-aid activities based on services rendered, the speaker said should be placed at between two and a half and three times the amount of the operating expenditures. The medical service need only be considered from one viewpoint, namely the financial value of periodic medical examinations. A number of insurance companies have assembled data to indicate this at a potential life saving value of thirty dollars. Dr. Wyatt used the conservative figure of five dollars. To this must be added forty-five dollars, for each man found to be unfit for employment on medical examination. This forty-five dollars represents the cost of hiring and training a man up to his true productive requirements. Similarly, additional savings are to be credited for each diagnostic laboratory service rendered and lastly by self insurance the employer may provide at a cost equal to that now borne by him for compensation above the following services: Casualty, group health, and group life insurance.

At the final meeting of this section (held at the new building of the Harvard School of Public Health) Professor Cannon discussed the problem of resuscitation in cases of respiratory failure, emphasizing the importance of prompt use of the Schaefer method without waiting for the ar-

rival of apparatus. Drs. Schroeder and Mitchell discussed carbon monoxide poisoning of domestic origin in Baltimore. Out of 145 cases studied 49 were due to faulty appliances and 17 to faulty piping. The marked variations in gas pressure which exist make the problem very difficult to deal with. In discussion Hayhurst reported that of 63 deaths from carbon monoxide poisoning in Ohio eight were due to bathroom heaters. The danger from all such devices is of course greatest in cold weather since carbon monoxide is likely to be given off so long as the gas flame is chilled below the combustion point of that gas. One of the most important papers of the convention was presented by J. C. Aub in summary of the recent studies on lead poisoning carried out at Harvard. These brilliant researches have made it clear that lead normally enters the body in the form of phosphate and is stored in the hard bones. Its subsequent release into the circulation results from any condition of acidosis (due to starvation or an attack of infectious disease) and may be experimentally produced at will by administration of phosphoric acid. Philip Drinker described and demonstrated the apparatus which he has devised for collecting atmospheric dust by electrical precipitation, a device which appears to be the most exact one yet brought forward for dealing with very small particles such as are present in fumes and smokes.

Child Hygiene Section.

The predominant feature of this section was the criticism, constructive and destructive, of prevailing standards of physical rating of children by means of height-weight-age tables.

Maud A. Brown believed that the criteria as used do serve safely to relegate to the malnutrition groups practically all children in need of a special regimen, either medical or dietary. The studies of William T. Porter, however, as yet unpublished but sufficiently extensive and prolonged to give them permanent and unquestionable value, indicate that any estimate of a child's normal or abnormal tendencies must be based not on the "average" child, but upon the "favored" child, one whose heritage, environment, and nutrition may reasonably be conducive to what is really normal, and not stunted or inhibited growth. We do not know what constitutes normal growth, nor have we analyzed its factors. We do know that a good physique is an asset; that underdevelopment is a handicap. Children advanced in school are better

developed than those who are retarded; members of the Royal Society of Medicine are taller and heavier than the common run of physicians; and physicians are of better physique than laborers. Monthly weight taking and the recording height measurements every three months are called for. Dr. Porter's study having to do with several thousand Boston school children over a period of several years indicate that in remedying unfavorable growth variations the height is a safer index than weight. Also, nutrition workers may be needlessly discouraged, or disturbed without grounds, by a failure of children in malnutrition groups to put on pounds, when the fact is that normally two-thirds of weight gained by growing children is put on in one-half the year.

The final session of the Child Hygiene section jointly with Public Health Nursing elicited sharp controversy between the two administrative extremes of school health centering in activities of the teacher, as admirably exemplified in the Virginia scheme, and the more generally advocated school service pivoting on the physician. Arguments pro and con were bandied back and forth, but the scheme that succeeds best, all things considered, was considered best.

The crippled child occupied the foreground in the final papers, R. B. Osgood voicing the orthopedic effort, and Edna L. Foley handling it as a problem of public health nursing. The child is to be corrected as far as may be, trained to the limit of his capacity, physical and mental, the final objective being to salvage a personality and give it the widest opportunity for wholesome and active living.

Public Health Nursing.

Aside from this joint session with the Child Hygiene section, the section on Public Health Nursing held one independent session at which the principal paper was presented by Margaret K. Stack on the requirements for public health nurses in eighty-three cities. The studies here presented indicated that private public health nursing organizations, as compared with those operated by official agencies show better supervision and a personnel of better background in training and experience; but Miss Stack emphasized the fact that if the nurses in a public department were placed under a single nurse director with freedom to organize her staff a result could be attained equal to that achieved by the voluntary agencies. A discussion on the relation of the public health nurse to the practicing

physician was participated in by Ira S. Wile, Alta Dines and Henry F. Vaughan, Miss Dines making a particularly effective presentation.

Health Education and Publicity.

The first session of the section on Health Education and Publicity was devoted to a clinic on printed matter under the leadership of Philip S. Platt. Twenty typical health leaflets and bulletins, issued by official and unofficial agencies, were analyzed in detail by D. C. MacMurtrie from the standpoint of physical arrangement, paper, and typography; and by C. E. Bellatty from the standpoint of presentation of subject matter and psychological appeal. This session proved extraordinarily illuminating and taught the health workers present some very practical lessons.

At the final session of this section, the chairman of the committee on current popular health education material, H. E. Kleinschmidt, presided at a symposium on various educational methods. In speaking of exhibits and expositions, Anna K. Behr stated that health shows as now carried on were largely a hodge-podge. The greatest good will not be attained until exhibits are topically arranged. In regard to the individual exhibits it seems that motion arrests attention; miniature three dimension exhibits are very attractive; but wall charts receive attention only by an unusual person. With exhibits topically arranged visitors should be obliged to follow a definite course or else each group should be accompanied by a trained guide. Marjorie Delavan reported the results of a questionnaire sent to state departments of health. Of the seventeen replying, eight employed a trained writer for their press and news work. Many other interesting facts relating to newspaper publicity were obtained from this source.

Dr. Kleinschmidt, in reporting new methods, told of such means as a Humpty Dumpty circus and parade, and of a folder largely financed and distributed by an ice dealer; the folder prepared by health workers for the purpose of spreading information on the proper means of preserving food during the warm weather. The literature carried no direct advertising but did state ice was cheaper than food or doctor's bills. B. R. Rickards emphasized the need of brevity in the health talks broadcasted by radio and also stated that many were apt to forget that a large percentage of those listening in on such educational material were boys; a fact which should be carefully considered in the prepara-

tion of the material. Printed matter was considered by Evert G. Routzahn and school methods and material by George B. Collins. Ira V. Hiscock indicated the need of a study of health bulletins; a type of educational material which at present has many varieties of form. The class that can be reached by bulletins should be determined and the material prepared for this specific purpose. In reporting its plan of work for the coming year the committee listed such a study as its major consideration.

The Boston Health Show

An important feature of the meetings, though not officially connected with them, was the Boston Health Show held at Mechanics Building, October 6 to 13, under the auspices of the Boston and Massachusetts health departments and the Boston Health Exhibit Committee. In connection with the show there was presented a Historic Health Pageant of an elaborate kind while numerous lectures and clinics were arranged including daily Parenthood Institutes, Baby Health Conferences and various special programs of dancing, gymnastics, etc.

The additional exhibits in the health show were on the whole exceptionally well arranged, each of the many aspects of the modern public health campaign receiving due attention and the contributing agencies being wisely subordinated to the topical presentation. On the other hand, the labels of the exhibits was by no means good and the show lost much of its educational force for lack of clear and forceful exposition of the meaning of each exhibit. Moving mechanical models were numerous and clever.

Among the individual exhibits, special mention should be made of the altogether charming series of models called "The House of Health" in the section on health of mothers and young children and of the valuable demonstration of biologic products made by the Massachusetts State Department of Health. The booths dealing with the health work of the League of Nations and with the newly organized Society of Friends of Medical Progress also aroused special interest. One of the valuable by-products of the health show was the preparation of a directory of Boston's public hospitals and dispensaries, the information for which has never before been gathered together.

The Parent-Teacher Association in the United States now includes in its membership 537,000 persons.

Irish Free State County Councils and Health Reform

At the annual meeting held late in July of the general council of county councils in the Irish Free State, recommendation was made regarding legislative reforms in regard to health. It was considered that the minimum health unit should be the administrative county or county borough, and that every health area should maintain a medical officer of health, a veterinary officer, and an official for the effective inspection of school children. The repeal of the Medical Charities Act is recommended and the provision of powers and facilities to furnish medical benefit to insured persons and their dependents, and medical service for those unable to pay for it.

Though a separate ministry of health is favored, its immediate formation is not urged. Present administration and immediate reforms could, according to the recommendations, be made effective through a council made up of constituted representatives of medical and allied professions, local health authorities, insured persons, labor, and other organizations concerned, and the Ministry of Education.

Disease Incidence Less Under National Insurance

A statement from the Institute of Actuaries, issued to clear up the crisis in England between physicians on the one hand and representatives of medical services to the friendly societies on the other in carrying out the provisions of the national insurance act, it is asserted that during the period covered such a decline in the incidence of sickness among the people has taken place that in most of the large societies it has never been more than 70 per cent, and in some of the years has fallen as low as 50 or 52 per cent of the rate calculated. The improvement is attributed, in the main, to the service of the panel physicians. It is held that the system has secured for a large section of the population medical care of a character and extent never previously obtainable. At a recent conference on the subject of representatives of the panel physicians, it was agreed that the service should be extended beyond the general practitioners range, and that a beginning might well be made with the provision of increased diagnostic facilities, to include Roentgen rays and laboratory service.

American Child Health Association First Annual Meeting

Growth Standards and Health Teaching Constituted the Subjects of Prominence at Detroit Convention

THE First Annual Meeting of the American Child Health Association, held in Detroit October 15 to 17 1923, was attended by more than eight hundred members and guests.

The following were re-elected to office: Herbert Hoover, president; L. Emmett Holt, first vice-president; Livingston Farrand, second vice-president; Thomas D. Wood, third vice-president; Corcoran Thom, treasurer; Philip Van Ingen, secretary, and Edward M. Flesh, comptroller. Maud Wood Park was elected fourth vice-president in place of Grace Abbott who was placed on the executive committee. Other members of this committee are George Barr Baker, James G. Berrien, Clinton H. Crane, Livingston Farrand, Edward M. Flesh, Mary Gardiner, Samuel McM. Hamill, Herbert Hoover, J. H. Mason Knox, Jr., Mrs. William Brown Meloney, Frank C. Page, Edgar Rickard, Richard M. Smith, Philip VanIngen, C.-E. A. Winslow and Thomas D. Wood.

In his address before the opening session of the convention, Herbert Hoover stated that "the physical and moral well being of the nation marches forward on the feet of healthy children." President Hoover spoke of the great benefits that had accrued from the amalgamation of child health organization during the first year of combined effort. The program of the new association was stated to have crystallized along the following lines: (1) the support of demonstration centers to prove the efficacy of scientific organization in child health; (2) the supply of a trained staff to those localities desiring demonstrations and willing to finance them from local resources; and (3) the scientific determination of the standing of different communities in respect to their own efforts in child health promotion.

Courtenay Dinwiddie presented the director's report reviewing progress in the field of child health and citing the great need for continued effort along these lines.

In speaking on the subject of broadcasting the news of child health, Mrs.

William Brown Meloney said, "Knowledge is without influence until it is given to the public. It is without power until it is accepted by the public. One of the longest steps in the progress of the world was taken when that new science known as publicity was developed."

Among the several consequences of good health conspicuous enough to interest the rural mother, Everett C. Hartley listed appearance, usefulness, alertness, and brightness. The endless repetition of the saying that good

them none less than the city mother. Examples of the lack of intelligent supervision given were astounding. In some instances fathers of the rural districts of Arkansas teach their sons to smoke before the youngsters are weaned. "One mother reported nursing her son for eighty-six months and added that he would stop on the back porch and dispose of his chew of tobacco before coming in from school to nurse."

Mary Riggs Noble stressed the far-reaching influence of proper mental and physical supervision during the pre-school period.

"If we have one burning faith among us," said Haven Emerson, "it is that children belong in homes of their own, with other children, and the companionship of their parents." Dr. Emerson urged the abandonment of the idea of the organization of services for children en masse, for provision through private and public institutions and agencies will not carry the load "which must be placed directly where it belongs, upon the family and in the household." Public endeavor has been directed first against the evils of one age group and then against another. Few children have had the benefits of prenatal, infant and pre-school care. "When we see offices set up by parents, staffed by doctors, nurses and others in the parents' employ, engaged in perpetual and continuous education and protection for health, then there will be a beginning of the real, the final, the permanent, the ultimate program for child health."

"Health is a home, household, and family problem except for a few of the situations handled necessarily by the health officer," said the speaker. "We cannot disregard the fact of experience and discontinue our efforts to have good health services available at schools, and for the children before they reach school, but the measure rather of our greatness than our bigness will be the smallness of numbers receiving public care in childhood, the lowness of percentages of children in school with defects, the rarity of expectant mothers who are not pro-



With characteristic verve Dr. George E. Vincent presented to the meeting the essentials of the modern public health movement to be (1) the prosecution of research; (2) the coordination of functions between voluntary and official agencies; (3) the training of personnel; and (4) the closest and most continuous scrutiny of what is doing to discover and correct weaknesses and mistakes.

health is valuable has robbed the truth of its vitality and only by appealing more specifically; stressing the above results, financial saving and freedom from worry, can material interest in child health be aroused in rural districts.

In discussing Dr. Hartley's paper, Frances S. Bradley said that the rural mother, though often losing nearly half of the babies she has borne, loves



Miss Lydia Roberts, assistant professor, Department of Economics, University of Chicago, urged upon the members of the American Child Health Association the importance of psychology and educational procedure in presenting the matter of health.

vided by their husbands with such medical and nursing guidance as physicians now know these women all require."

Stating that three-fourths of the deaf, many of the blind, one-half of the crippled, and three-fourths of those suffering with speech defects became afflicted before school age, Arnold Gesell pleaded for more intensive effort toward the improvement of the mental and physical equipment of the child while it is yet in its formative period.

The second day of the meetings was opened with a symposium on "The Workers in Health Education—The Work They Should Do." John M. Dodson, in speaking of the doctor, said that more care was needed in the selection of students admitted to medical schools, especially as to character and ideals. "More stress must be laid on the training and development of the faculties rather than on the imparting of information. More time should be devoted to first hand training in laboratory and the small group clinic and less to the didactic lecture and display clinic. Most important of all, much more attention must be paid to preventive, as distinguished from curative, medicine."

In dealing with the teacher, Mabel Bragg stressed the teaching of health, citizenship, and the wise use of leisure. Children's activities cannot be curtailed but are rather to be directed along proper lines. If daily inspection

is to be of value it must not be considered as a device for "catching" the children but used as an opportunity of appreciation and commendation of those school children interested in their health.

One of the most interesting sessions of the meeting resulted from the presentation of a paper by Louis I. Dublin and John C. Gebhart dealing with height and weight as an index of malnutrition. The authors presented findings obtained from a study of 1,878 boys and 2,169 girls in the Mulberry Bend district of New York City, one of the largest Italian communities in the country. These children were given careful examination by a well trained pediatrician and classified as well or malnourished on the basis of this examination which considered such factors as the state of the musculature, eye luster, the color and bearing of the child, posture, and the amount of subcutaneous fat, as well as the relation of weight and height to age.

"The first striking fact that came to hand was the marked disagreement in results by the two methods. The physician's careful examination showed 54 per cent of the children to be malnourished. The weight tables with the 7 per cent limit would have selected 12.4 per cent, and with the 10 per cent limit only 6.2 per cent, as requiring nutrition care.

"A method which misses three-fourths of all the children whom a competent physician after a thorough examination would call undernourished has certainly scant value even as a rough index for sorting out the most needy cases."

It was recognized that in this case the children deviated widely from the national type, but, using a norm constructed for Italian children, it was found that only one-half to three-fifths of the children needing care were selected. It was admitted that the height-weight-age standards, though a poor method of examination, is still the best single guide available. Where medical attention cannot be secured it is the only makeshift; it does not give maximum results. "For that there is only one method; to give every child one good physical examination a year. This alone will determine what the true state of health among the children of a community is, and which of them require additional special nutritional care."

Thomas D. Wood said that standards should be based not on the average but on a group of superior children and that immeasurable good had been accomplished by the use of stand-

ard tables, not only in selecting malnourished children but also in interesting all children in health matters. He also said that other methods should be used in addition as far as possible.

Louis C. Schroeder, who examined the children used for the statistical study of Dublin and Gebhart discussed the technique of such examinations.

Opening the sessions of the last day of the meeting, the first paper on the problem of Early Infant Deaths was presented by Edward L. Cornell who showed the lack of specialists in obstetrics. The American Medical Association's Directory lists but 146 purely obstetric specialists in the United States, which gives a ratio of one specialist to 17,000 births. Monetary returns offer a partial explanation for this condition. The average fee for a confinement case is around \$50 while the average fee for appendicitis is \$100. In the former the entire period of care may extend over six or seven months while in the latter the period is rarely over one month. "Educate the public to pay surgical fees for obstetrics and demand expert service," said Dr. Cornell. The social agencies are doing splendid work among the poor in raising standards but the middle class is not touched.

The relations of the public health nurse and the official agencies were treated by Mary Laird and Frances S. Bradley.

The closing session was a joint meeting with the Central States Pediatric Society and the Wayne County Medical Society. At this gathering



Dr. George T. Palmer, director of research, American Child Health Association.

Borden Veeder outlined the three needs of pediatrics; (1) the research worker; (2) the private pediatrician; (3) the pediatrician in public work—outlining the fields and objectives for each type.

Clifford G. Grulee reviewed the growth of knowledge of infant feeding and A. L. Jacoby defined the status of knowledge regarding the mental development and mental hygiene of the child. In a paper on Standards of Growth and Nutrition, Hugh McCulloch pointed out the error involved in placing sole reliance of standard height-weight tables in the selection of undernourished children.

Several round table luncheons were held during the convention. One of the most interesting dealt with the

work of the Manhattan Health Society which is a community organization furnishing supervision for pregnant mothers, assistance at confinement other than the doctor's services, supervision for children under two, and supervision of children from two to six years of age as well as visiting nurse care for sick persons of all ages. Individual membership is \$6 per year; per family of three or more, \$16 per year.

Many of the visitors at Detroit inspected the Merrill-Palmer Nursery School, one of the pioneers along this line in the United States.

A demonstration of Health Education through play, by the Detroit Public School Children proved both interesting and excellent.

Fumes From Type Machines

THERE is still considerable discussion relative to the hazards incident to the printing trade. In former years type-setting was entirely a manual process, whereas at the present time the monotype, linotype, and stereotype have in all large shops supplanted the older methods. There are still many small, old-time establishments, however, in which hand work is carried on exclusively.

In spite of the new methods introduced into the trade, cases of poisoning continue to be too numerous. It has for some time been generally admitted by students of the problem that the more dangerous processes in the trade are those in which the workers are subject to lead dust; melting old type, polishing old type, and setting old type. Those doing stereotyping, electrotyping, linotyping, and monotyping are subject to much less danger, as also compositors working with new type.

The pots of type metal on linotype and monotype machines are kept at a temperature of about 500 degrees C. Since lead melts at about 327 degrees C. and does not boil until a temperature of about 1,525 degrees C. is reached, it has been thought that there is little danger from the metal pots. Fumes do arise, however, when the pot is stirred or skimmed or when replenished with cold pig lead. Particularly on monotype machines, oil dropping on the surface of molten lead produces fumes that are disagreeable if not harmful.

In rooms exclusively devoted to monotyping, the heat from the gas

burners commonly employed to heat the lead pot, as well as incomplete combustion products from the gas may be objectionable. The same gas fumes and heat are experienced with the use of the linotype machine. A new model of linotype machine with an electrical heater has recently been placed on the market. One of these has already been installed in the composing room of the New York Times.

Exhausts for lead pots on monotype and linotype machines are quite universally employed, though their construction presents many difficulties. The pot is hinged to permit swinging out from the machine, hence the exhaust intake cannot be rigidly attached to the main exhaust duct; it must follow the lead pot through the arc of its swing. Branches running from the main duct to the pot usually divide near the pot, one arm receiving the gases from the burner and the other terminating above the surface of the molten lead.

Many machines are equipped with the patented "Zenke head" which is, according to the operators, very satisfactory. A similar report was received from state factory inspectors queried in regard to this. As a test of an efficient condition found in actual operation, the Division of Industrial Hygiene, New York State Department of Labor, has stated that there should be one-half inch static suction generated in the branch

pipe to which a Zenke suction head is attached.

Linotype machines have been quite generally fitted with Zenke suction heads or some other form of double duct based on the same general principle. When this type of fitting was in universal practice, lead in the metal pot was replenished by hand with small pigs. Modern improvements in the method of supplying the solid lead have necessitated further changes. The Margach self-feeding device was introduced. This is an automatic device by means of which a pig of lead, five or six times the length of the small pig previously used, is fed into the metal pot as fast as the molten lead is used up in operation. In some cases when this device was first introduced the branch of the Zenke head over the metal was cut off, thereby negating to a great extent the benefit of the exhaust. To overcome this difficulty hoods were devised that enclose the top part of the pig and the suspending chains. Such hoods, some with the doors open to permit adjustment of the feeding device are shown below, illustrating a battery of linotypes at the McGraw-Hill Company.

Industrial Eye Accidents

Of a total of 1,000 injuries to the eye, statistically studied by Garrow (*Brit. J. Ophthalm.*, Vol. 7, p. 65), 707 were of industrial origin. Metal workers, coal miners and workers in molten metal led the list.



An adequate scheme of ventilation for the protection of linotype machines.

Need for Better Understanding of Injured Employees' Claims

THE application of workmen's compensation laws in forty-two states expresses very clearly the general acceptance of the principle of industrial responsibility for industrial injury, but a survey of the variance in their interpretation shows that widely different meanings attach to questions of personal injury and other accidents. Time must be lost to entitle a worker to compensation and medical appraisal is involved, but there is so much conflict among the administrative laws of the different states, and such lack of facilities for getting information on the questions involved, that the National Industrial Conference Board has undertaken a study which is a new contribution to this vital problem, receiving in its work the active cooperation of the Conference Board of Physicians in Industry.

What is needed most, in the opinion of the experts, is greater consideration of the opinion of medical men in the administration of workmen's compensation laws, and more uniform practices among those concerned with their administration. Identical injuries are compensable in widely varying amounts in various states, and a similar inequality exists in the courts' interpretation of identical sections of various laws.

The only states which have no workmen's compensation laws are Arkansas, Florida, Mississippi, Missouri, and North and South Carolina. The experiences of the other forty-two states have now been sufficiently extended, in the opinion of the National Industrial Conference Board and its research staff, to render the record of the physician's part in workmen's compensation laws worthy of being permanent.

There is an increasing tendency to give due consideration to the value of adequate medical treatment in the administration of the laws. Early in their administration, the doctor's part received scant attention. In some states, even for the most serious injuries, only two weeks' medical treatment could be legally provided. "A period of experience has now elapsed," says the report, "sufficient to enable those who make the laws and those who administer them to obtain a better view of the problem. Such expe-

rience has shown the advisability of greatly increasing both the time and amount of medical service rendered, until at this time in 20 states such service may be unlimited."

The report shows that employers, for failure to report accidents to their men, may be fined various amounts, ranging from ten dollars in California, Delaware and Illinois to a year's hard labor in Alabama or \$2,500 in West Virginia.

The term "medical service" receives widely different interpretations in various states. Ohio and Connecticut have freed employers from liability when injured workmen took their troubles to quacks, masseuses and "doctors of medical electricity." Similarly the California State Commission refused to reimburse a worker who consulted a Chinese herb doctor. Iowa and Connecticut do not regard osteopaths as qualified to act in compensation cases, while California permits them. In Wisconsin Christian Science treatment may be resorted to by an injured worker with his employer's consent. There a death from a bruised shinbone infection which was treated by prayer was held compensable. However, a Boston elevated railway employee who presented a fourteen dollar bill for services by a Christian Science practitioner lost his claim.

One result of many of the laws has been to break down the universally accepted principle of privileged communication between doctor and patient. In many states physicians can be compelled to testify as to their treatment.

States differ in the law's rulings on various surgical operations. For instance, the hand extends to the elbow in the legal opinion of Alabama, Connecticut, Delaware, Kansas, Nebraska, New York, and other states, while it extends only to the wrist in Colorado, Idaho and Montana. The human foot in Colorado extends only to the ankle, but in Alabama it extends to the knee. New York takes a middle ground, merely qualifying it as terminating some place "between the knee and the ankle." A Pennsylvania worker lost the power in one foot to walk easily and received compensation, while in Minnesota the Supreme Court refused to affirm a similar award because

"the foot was still there," but authorized partial compensation.

Various state courts and commissions have answered in various ways the question: "What is the human body worth?" For example, a thumb is worth \$225 in Wyoming, \$600 in Oregon, and in New York and Alabama the legal compensation for sixty weeks. Wyoming holds a human hand worth \$1,000, while its value rises to \$1,600 in Washington, \$1,900 in Oregon and 244 weeks' compensation in New York, and it is worth 104 weeks' compensation in Colorado. Similar variations in legal value occur with reference to the loss of an eye, a toe, a foot and fingers.

New York holds that when a worker is injured so that only his good looks are impaired, he may collect from his employer owing to the humiliation entailed. In New York and Michigan compensation was awarded when horses bit off ears of workers, but in New York the award was based on the common law. One worker collected in New York because he was unable to replace his lost eye with one of glass, and a drooping eyelid which made the injured person appear to be winking at whatever he observed, resulted in another award. Another New York workman, whose nose was bitten off by a horse, received \$2,500 from the compensation board. Deafness has been valued at \$3,000 in Oklahoma, and deafness in one ear at \$1,500. In Washington loss of hearing is only compensable at \$1,900 and of one ear's deafness at \$500.

Pennsylvania has held in the case of an automat lunch-counter attendant, that heat prostration at work causing death was an accident, while in Connecticut frostbite was similarly judged. In New York, however, the courts held that a sunstruck brewery wagon driver was not entitled to compensation. Pennsylvania authorities showed regard for the injured worker in the case of a dogcatcher in New Castle, who was bitten by one of his captives and died of hydrophobia. His estate received compensation.

Persons bitten by insects, when spotted fever has resulted, are not entitled to damages in the opinion of the Idaho Industrial Accident Board. However, New Jersey authorities held that a chef pinched by a lobster was

entitled to five weeks' disability award for infection. In California, on the other hand, a farmhand, bitten on the leg by a spider, failed to get damages. The same commission, however, reversed this ruling in the case of a sailor whom a spider bit, holding that spiders had no business aboard ship and that the ship's owner was liable. Poison ivy injuries have been held compensable in New York and Massachusetts, but a municipal laborer in San Francisco was denied an award for poison oak injuries.

One of the sharpest controversies among compensation boards is over the proper valuation of the impairment of sight. Various tables and tests have been evolved, but they display wide discrepancies. They agree, in fact, only on one item: What constitutes normal vision?

Montana, Idaho, Utah and Wisconsin allow twenty weeks' more compensation for the removal of an eye than for blindness in one eye without removal. Pennsylvania, however, holds that where there is blindness the removal of the eye makes no difference, and allows nothing additional.

One of the most important phases of the report is that which shows the widely varying amounts expended for medical treatment under the awards of various states. For instance, in Wyoming in one year allowed only 3.6 per cent of the total awards as for medical expense, while the percentage in Connecticut for two years was 38.2, totaling \$1,663,107.08, and in Massachusetts, where industrialism has reached one of the highest points of development, the percentage was 20.8 with medical expenses of \$1,602,057.74.

In only one state, New Mexico, is there a provision for the physical examination of workers before an injury occurs.

Summing up its investigations, the report shows that both interested parties to compensation laws, the workers and the employers, have accepted as just, the principle that one group should be charged with major responsibility for injuries suffered by another group. Differences which have appeared are not of sufficient importance to cast doubt on the value of the work as a whole, the report concludes.

House Letting and Infection: A Reading of English Law

Much interest has been excited by the publication of the *Lancet* of July 7 of Mr. Justice McCardie's reserved judgment in the case of Col-

lins vs. Hopkins, the issue of which was the extent of the implied warranty by the lessor of a furnished house that it is reasonably fit to inhabit, where there has been an infectious disease in the house shortly before the lessee's occupation, the disease in this case having been tuberculosis.

In his reading of the law a warranty is implied in any contract on the lessor's part that the premises are reasonably fit for habitation. The law does not lay upon the lessor the obligation to consider the fads of nervous persons unreasonably afraid of infection where no danger exists, but it does include freedom from risk of infectious disease, regardless of whether the subject was mentioned between him and the tenant or not. The judgment in question allowing damages to the tenant was definitely based on the fact that the house was left in a dirty condition, and that dirt affords a nidus for development of bacteria of all kinds and over and above this there was the assurance on the part of medical attendants that the case involved was not one of pronounced symptoms of advanced disease; the patient was sanatorium trained, and meticulously careful. Hangings and floors were washed, bedclothes sent to the laundry, and new covers made for cushions, etc., etc.

The *Lancet* makes the point in commenting on the case that "if the patient was carefully trained in his habits, if he carried out all his instructions, and if due regard was paid to ventilation, sunlight, cleanliness, removal of dust and dirt, and the like, then the risk of infection might not be serious even to those who resided with him. Still less was the risk to those who entered the house after the patient had left, the essential factors in the conveyance of disease being the conveyance of infection from one person to another."

The whole potency of methods of disinfection of the modern hygienist is brought up in the connection. Dr. T. W. Naylor Barlow is quoted as saying that all house infection may safely be scrapped. Without denying the possibility of transmitting disease by means of inanimate objects, he denies the role of books, the walls of rooms, and such like in the spread of disease and declares that the so-called disinfection of rooms by gas is futile and unscientific. Conviction is growing that the living, breathing human being is the only danger, and the essence of hygiene is to organize bed-

side nursing during the whole course of a patient's illness in such a way as to make terminal disinfection of secondary importance or, indeed, altogether superfluous.

It is perpetuation of the chronic carrier to which professional and public alike should be directed and, while gaseous disinfection by formalin and sulphur fumigations may be done, this sanitary ritual should not lead to any neglect of the weightier matters of the law of personal hygiene, soap and elbow-grease, sunshine, and ventilation.

Health Topics at World's Dairy Congress

The program announced for the World's Dairy Congress which was held in Washington, D. C., October 5 to 10 was arranged in four principal sections:

(1) *Research and Education*: to interest teachers, investigators, engineers, and other technical men interested in the solution of dairy problems.

(2) *Industry and Economics*: to benefit men engaged in breeding dairy cattle and in producing, manufacturing, exporting, importing, storing and distributing dairy products and equipment.

(3) *Regulation and Control*: to serve national, state, municipal, and private officials concerned with standards, adulterations, sanitation, and animal disease control.

(4) *National Health*: to coordinate interrelated problems of public health and nutrition workers, philanthropists, social and welfare workers, and students of the influence of diet on the health and vigor of nations.

The exchange of experience from the representatives in this field from all nations, and especially the radical departure of this from preceding programs in supplying adequate research into health and economic backgrounds, should enable the Conference to render inestimable service.

Athens, Ga., has been selected by the National Child Health Association for a five-year child health demonstration. A fund of \$250,000 has been set aside by the Commonwealth Fund for conducting this center, which will be established within a month with a maternity clinic, as the initial step, to be administered by experts. The personnel will soon be increased by the addition of physical educational workers and specialists in the diseases of children.

LATE HEALTH DECISIONS IN THE COURTS

By DOROTHY KETCHAM, UNIVERSITY HOSPITAL, ANN ARBOR, MICH.

THE Supreme Court of Massachusetts recently passed upon appendicitis as a complicating factor. The employee in question received an injury to his back caused by falling from a stepladder and which arose "out of and in the course of employment." The injury either caused or aggravated an arthritis of the spine which totally incapacitated him until the time he died. During this period compensation was paid. February 4, 1922 he suffered from severe abdominal pains diagnosed as appendicitis, he was operated therefor, and died ten days later. The widow sued for compensation but the Court states that "As the appendicitis had no connection between the injury and the death, it could not properly be found that death following the operation resulted from the injury. The appearance of appendicitis, necessitating an operation which resulted in death constitutes a new and intervening cause wholly independent of and without any relation to the injury and the death, the latter could not be found to have resulted from the former. The operation was an independent intervening agency which broke the chain of causation."—*Up-hams Case*, 139 N. E. 433.

THE Supreme Court of Illinois June 20, 1923, decided that where an employee died from a disease which was aggravated or caused by an injury received in the course of his employment, it may be said that death resulted from the injury. The two physicians who performed an autopsy on a deceased employee did not agree as to the probable causes of death from hypostatic pneumonia and meningitis. However, they both agreed that the accident might have been contributory. The Court held that the findings and award of the Commission "are not against the manifest weight of evidence . . . Where an employee dies from a pre-existing disease and the disease is aggravated or accelerated by an accidental injury, or an injury which produced pneumonia or other disease

which aggravated or accelerated such pre-existing disease, the death may be said to be caused by accidental injury." It may be added that syphilis was found to be a complication which one of the physicians felt caused the hemorrhage of the brain. This physician admitted on direct question, however, that "the accident might have been a contributory to his death, and that the autopsy showed a hypostatic pneumonia, which might have been one of the causes of his death . . ."—*Great Lakes Supply Company v. Industrial Commission*, 140 N. E. 2.

ON September 28, 1918, the plaintiff filed suit to recover damages for an occupational disease, namely, lead poisoning, caused by continuous employment for about a year and a half in a place laden with dust and fumes, where he contracted the disease. The Court holds that cases arising prior to 1921 when the occupational disease law was enacted are not compensable and recovery at common law for diseases of that character would seem to be denied.—*Bajackuck v. Willard Storage Battery Company*, 140 N. E. 405.

A SERIES of cases recently decided by the Massachusetts Supreme Court brings up the matter of medical services and hospital treatment. In the first two cases the injury admittedly arose "out of and in the course of the injured man's employment, each being entitled to necessary treatment beyond the two weeks waiting period as unusual cases. Paul Rys was injured May 17, 1921 and was treated at the Haymarket Relief Station. From May 19 to September 28 he was treated by Dr. Frederkiezicz at his office except on May 31 and June 1 when one finger and a portion of another were amputated. The Industrial Board found that his was an "unusual case" entitled to prolonged care. The insurer claimed that it was not an unusual case and that the Board was not warranted in holding it liable for medical services.

"The term 'unusual case' as used by the Legislature, according to the Court, was adopted at the request of the Industrial Board to distinguish as follows: It is manifest that the Legislature did not intend to impose all expenses of medical attendance upon the insurer. The obligation to provide such attendance as an absolute duty is confined to two weeks after injury . . . It is not in an ordinary case requiring longer medical attendance that the discretion of the Board may be exercised to charge this attendance to the expense of the insurer. It is only in 'unusual cases' that they may do so." The Court states that in this term would ordinarily include "major operations, spinal injuries calling for special apparatus, and serious injuries to the eye or brain demanding the services of specialists. It is equally clear that the statute is not applicable to the minor injury, even though treatment for more than two weeks is necessary."—*Rys' Case*, 139 N. E. 507.

THE Supreme Court of Wisconsin recently passed upon the compensability of hernia and treatment for same. The Court states that the mere fact that a hernia developed during the period of the man's employment is not sufficient to show any relation between his employment and his condition. It was also contended that the Industrial Commission had no jurisdiction to enter an award requiring the company to offer to the applicant medical, surgical and hospital treatment. "While under the terms of the act the employee shall have the right, in event of the failure of the employer, to tender medical treatment, to procure the same, and to be re-imursed therefor, this certainly does not confer upon the Commission the power to compel the employer to offer the treatment in the first instance or prescribe its character or extent."—*Belle City Malleable Iron Company v. Industrial Commission*, 192 N. W. 1010.

THE Occupational Disease Act of Illinois amended in 1921, p. 444, has been declared unconstitutional for failure to insert the amended section at length in the new act and because of an attempt to amend the existing law by not properly distinguishing new and different portions from the older ones.—*Kelley v. St. Louis Smelting & Refinery Co.*, 138 N. E. 618.

SANITARY AND HYGIENIC ADVANCE

Anthrax in Australia

The first case of anthrax infection of man to be reported in Australia was in 1917. Since the report of this case 32 others have been added to the list. Of the total 33 cases on record 31 occurred on the shaving area; 2 on the forearm were traced to infected goat-skins. In 15 out of the 31 cases in which the portal of entry was on the shaving area of the face, anthrax bacilli were recovered from the patients' shaving brush. In 6 cases anthrax bacilli were recovered from brushes of the same type though not from the patient's brush. In five cases anthrax bacilli were not recovered on the examination of brushes and in five cases no examination was made.

The great majority of infected brushes have entered Australia in consignments from Japan. When human anthrax first appeared in Australia, a proclamation prohibited the importation of brushes from certain countries, subject to specified conditions. Later this ruling was mitigated to permit the entry of goods if a certificate of disinfection was produced within 60 days. Later, because of the occurrence of several fresh cases and the unreliability of the certificates, absolute prohibition of importation from certain countries was substituted.

This prohibition was removed when the Japanese Imperial Government agreed to guarantee disinfection and issue the certificates. Since this action was taken no case of anthrax has been traced to imported brushes. Other countries must still comply with approved disinfection measures. (*Health, [Melbourne] March, 1923, i, 3, p. 75*).

Detection of HCN

Poisonous hydrocyanic acid gas is sometimes evolved in dangerous quantities from cyanides used in metallurgical and chemical operations. This gas is much used for fumigating buildings, ships, greenhouses, and such commodities as grain and cotton to destroy rats, mice and insect pests. Wherever cyanid fumes are evolved, thorough ventilation is nec-

essary in order to render the surrounding air safe to breathe. Many persons have been killed by entering tanks and fumigated places too soon.

In view of the need for a simple test for the detection of these gases, Katy and Longfellow, at the Pittsburgh experiment station of the Bureau of Mines, conducted a series of experiments which resulted in the development of color test papers for detecting hydrocyanic acid gas vapor. The shade of color produced in tests, compared with a color chart, gives an estimation of the concentration of the hydrocyanic acid gas over a range of 25 to 1,000 parts per million parts of air. The investigators' determinations in the laboratory were within 20 per cent of those found by chemical analysis. It is recommended that unprotected persons be not allowed to enter atmospheres containing hydrocyanic acid gas unless tests show concentrations not exceeding 100 parts per million. (*Serial 2504, Bureau of Mines*).

Phagocytosis of Lead

Using Fenn's "film method" for studying phagocytosis, Fine has determined that metallic lead is less readily phagocytized than is basic lead carbonate. The injury of leucocytes by soluble lead is shown by their diminished ability to engulf carbon particles. This toxic effect of soluble lead is also the probably explanation of the diminished phagocytosis of carbon in the presence of metallic lead. The rate of phagocytosis of metallic lead is of the same low order of magnitude as that of quartz.

The fact that lead compounds are phagocytized more readily than metallic lead may offer an explanation of the fact that laborers inhaling basic lead carbonate and other lead compounds are relatively free from tuberculosis, but suffer from lead poisoning; whereas printers who inhale metallic lead dust, show a high incidence of tuberculosis but are relatively free from poisoning. This theory would also include the fact that metallic lead acts somewhat in the manner of quartz, in producing

fibrosis. (*J. Indust. Hyg., Aug. 1923, v. 4, p. 138*).

Problem of Epidemiology

Hone, the chief quarantine officer of South Australia, states (*Health, June 1923, i, 6, p. 153*) that during the past five years a series of acute cases of an unrecognized illness have been observed in and around Port Adelaide. The first cases were looked on as aberrant cases of typhoid or paratyphoid infection. Later more cases appeared among men occupied on weevily wheat stacks, so that the disease was called by the wharf laborers the "wheat disease." One of these later cases died and post mortem showed no intestinal ulceration.

Early symptoms simulate typhoid very closely, but serological examination is invariably negative. Cases having a severe rash have been taken for measles. Blood from the patients invariably agglutinates *B. proteus* after the eighth or tenth day, in dilutions from 1-80 to 1-10,000. Clinically and serologically the resemblance to typhus is marked, but body lice have never been found on a patient and head lice only once.

It is thought possible that this disease may be quite wide spread in Australia since the condition is very easily confused at varying stages with typhoid, measles, and typhus. Investigation of the problem continues.

Agitation of Scum in Imhoff Tank

To prevent "boiling over," apparatus for the mechanical agitation of scum in the vent chamber of an Imhoff tank has been installed at Newton, Kan. The mayor of Newton and a local machinist devised a walking-beam arrangement carrying four mill-conveyor screws upright in the vent chamber. Power is derived from one of the sewage pumps. An engineer of the firm designing the plant states that such satisfactory operation has resulted that a similar arrangement has been installed in the plant at Enid, Oklahoma. (*Eng. News-Record, Aug. 23, 1923, 91, 8, p. 301*).

The Mississippi Valley Conference on Tuberculosis is to be held at Evansville, Ind., October 8 to 10. Dr. Robert G. Paterson, executive secretary of the Ohio Public Health Association, is president of the conference.

Typhus Immunity

Weil and Breinl have shown that the injection of 5 c.c. of immune serum into guinea pigs, followed on the next day by an intraperitoneal injection of 0.001 of an emulsified typhus infected brain produces immunity in the animal so treated. This can be shown by reinfection 8 weeks later which fails to produce symptoms of the disease.

The investigators state that their method "consists in incorporating immune serum and virus into the organism at the same time in such proportions that the infection, i.e., the development of the virus, is not prevented, but that the infectious symptoms alone are suppressed. How far it will be possible to use the experience gained in animal experiments for the immunization of man must be left to future investigations to settle." (*J. Infect. Dis. July 1923, 33, 1, p. 60.*)

The After-Care of Poliomyelitis

In the beginning, the supervision of poliomyelitis cases in Vermont was purely surgical. Then was added after-treatment by a trained field worker. The scope of the field work was enlarged, and the worker investigated cases throughout the state needing treatment, instead of waiting for the patients to be brought to the clinics. A definite plant for handling operative cases was instituted. A school for crippled children was founded. A department of vocational training was established. After eight years of experience in the work Robert D. Lovett, (*Journal A. M. A., Sept. 15, 1923, 81, 11, p. 921*) presents his personal conclusions as to its value and estimates what has been accomplished. It seems evident to him that the number of disabilities from poliomyelitis has been greatly diminished, and the number of serious resulting deformities is considerably smaller than it would otherwise have been; that the patients have been, on the whole, appreciative and cooperative, and that many are now independent, useful citizens, capable of self-support, who otherwise would have been severely crippled if not quite helpless. In other words, from being chiefly a surgical problem, the work has become largely a problem of supervision and after-care. Immediately after an epidemic and for two or three years more, the problem is an acute surgical one with definite requirements in the way of effective following up in the homes. After three or four years, the surgical ele-

ment becomes less insistent and the follow-up work more so. The study of poliomyelitis seems to indicate that the disease is a periodic one, and, until more is known about the way in which it is transmitted, there is reason to believe that Vermont may be the scene of future epidemics. If this should be the case, the presence of an effective organization such as now exists is a real insurance, as it could be expanded to meet an emergency.

Oxygen-Oil Explosions

A study of the nature and causes of oxygen-oil explosions is being conducted at the Pittsburgh experiment station of the Bureau of Mines. This problem was taken up by the bureau as a result of the oxygen explosion at the Jefferson Physical Laboratory of Harvard University, and other similar explosions, in order to supply technical information which would serve as a basis for safety precautions in the future. At the Harvard inquiry the fact was emphasized that the limiting pressures and temperatures above which compressed oxygen and lubricating oil are capable of spontaneous explosion are not known. The problem is also of importance to the Army and Navy and to the Bureau of Mines in connection with the hazards incurred in the use of compressed and liquified gases in the re-purification of helium. In fact, the risk of fires and explosions due to traces of lubricating oil coming into contact with high pressure oxygen is of serious interest to all concerned with the manufacture and use of oxygen, a commodity which is now being produced and distributed on a rapidly increasing scale. A preliminary report, by Hersey, giving a general outline of the problem and a summary of results to date, is now available. (*Serial 2507, U. S. Bur. of Mines*).

The Potassium and Calcium Balance in Cancer

Wolf (*Compt. rend. Acad. d. Sc., Vol. 176, p. 1932*) confirms and extends the work of previous experimenters in regard to the abnormally high proportion of potassium as related to calcium in cancerous tissue and the effect of such an excess of potassium in increasing permeability of the cell membrane and thus promoting the development of the diseased condition. The use of ionic calcium in the treatment of cancer seems to the author to be clearly indicated.

Garbage Bills Collected by Agents

Bills for the collection of garbage from the householders of Sacramento, Calif., are presented by agents of the city. With occasional aid from the head of the department, three collectors have been found adequate to collect from the 15,000 places that subscribe to the garbage removal service. (*Eng. News-Record, Aug. 23, 1923, 91, 8, p. 307.*)

"Solicitation in person is made rather than mailing the bills because that additional cost is more than offset by the lower percentage of bad bills. Another advantage of personal solicitation is that the collector can report attempts to evade proper classification, failure to observe sanitary regulation, etc."

Carbon Tetrachlorid Fire Extinguishers

Tests made by Katz, Gleim and Bloomfield at the Pittsburgh experiment station of the Bureau of Mines relative to the hazards to fire fighters from gases and smoke resulting from the application of carbon tetrachlorid extinguisher to electric arcs, burning insulation, or fires such as may occur in electrical apparatus and machinery. (*Serial 2499 U. S. Bur. of Mines*).

It was found that the application of one cubic foot of carbon tetrachlorid fire extinguisher to electric arcs and burning insulation in a chamber of 1,000 cu. ft. capacity developed phosgene, chlorin and hydrogen chlorid in quite dangerous concentrations. Carbon tetrachlorid vapors, sulphur dioxide and carbon monoxide were also formed in less dangerous concentrations. Rats exposed for 15 minute periods to the gases evolved from the use of carbon tetrachlorid on the arcs died or were seriously affected.

So far as is known, carbon tetrachlorid extinguishers are the most effective and satisfactory of any that can be applied to electrical fires with safety from shock to the operator. Arcs of 60 amperes direct current and 220 volts and 35 amperes and 500 volts were easily extinguished with a 1 quart carbon tetrachlorid fire extinguisher.

It is not the purpose to discourage the use of carbon tetrachlorid extinguishers which are safe under all conditions excepting those in close confinement of fire gases in absence of ventilation and lack of ready escape for the operator from the gases.

Movement of B. Coli in Ground-Water

A report of the progress of the Board on Excreta disposal has been made by Stiles and Crohurst. (*Pub. Health Rep.*, June 15, 1923, 38, 24, p. 1350).

Pollution with fecal *B. coli* has been followed in the ground-water for distances up to 65 feet from the trench in which the pollution was placed. Uranin has been recovered from the same wells and has spread, to a maximum distance of 115 feet from the pollution trench. The pollution traveled this distance in a period of 187 days. No convincing evidence was found indicating that the pollution travelled against or at right angles to the flow of the ground-water.

The pollution travelled only in a thin sheet at the surface of the zone of saturation. As the ground-water level falls in dry weather the pollution tends to remain in the sand above the new (lower) level.

The soil in which the measurements of speed and distance of pollution travel were made, was a fine sand with an effective size of 0.13 mm.

A Vaccine Against Acute Conjunctivitis

Nicolle, Conseil, and Cuénod (*Compt. rend. Acad. d. Sc.*, Vol. 177, p. 382) have demonstrated that subcutaneous injections of killed cultures of the Koch-Weeks bacillus will confer complete protection against the conjunctivitis caused by that organism.

The Fauna and Flora of the Imhoff Tank

It is a long time since much of importance has been added to our knowledge of the fundamental biology of sewage treatment processes. The careful cooperative study recently undertaken by the Agricultural Experiment Station and the Department of Health of the State of New Jersey at New Brunswick is therefore of the first importance. A preliminary report by Hotchkiss & Murray (*Am. J. of Pub. Health*, July 1923, VIII, 7, p. 562), presents suggestive data in regard to the distribution of the various types of bacteria in the Imhoff tank treating the sewage of Plainfield. This work was conducted by the dilution method using media calculated to reveal the presence of groups of bacteria exhibiting certain definite biochemical properties and shows very clearly the distribution of various

groups of proteolytic, nitrifying and denitrifying forms. Organisms producing ammonia from pepton and liquefying gelatin are present in enormous numbers. Denitrifiers as would be expected increase in the tank and nitrifiers decrease slightly although the number of nitrifiers present throughout the process is rather surprising. A second paper by Hausman (*Am. J. of Pub. Health*, August, 1923, VIII, 8, p. 656), discusses the protozoa present, mainly small flagellates of the Monas type and small ciliates of the Colpoda type.

Garbage Disposal for Buffalo

From an analysis of bids on various single and combined methods of garbage disposal, received last year by the city of Buffalo, H. P. Eddy has recommended that a choice be made between garbage reduction by the Cobwell-Merz process and a piggery supplemented by a garbage-and-manure drying plant (Wannenwetsch). Based on the estimated population for 1935, the approximate cost of the reduction plant would be \$775,000, and the cost of the combined piggery and drying plant, \$779,000.

The city is warned that they must not overlook the fact, as has so often been done, that efficient operation is as essential as correct design and construction. (*Eng. News-Record*, Sept. 30, 1923, 91, 12, p. 479.)

Bacterium Aerogenes in Swimming Pools

A study of gas forming organisms in samples of water from two swimming pools has been reported by Levine and Werkman. (*J. Am. Water Works Assn.*, July, 1923, x, 4, p. 620). It was found that gas forming organisms when present were usually of the *Bact. coli* type in the pool used exclusively by men, whereas the organisms found in samples from the pool used exclusively by women were practically always the *Bact. aerogenes*.

The women's pool was situated in the basement; there was no provision for visitors, and no arrangement to prevent the tracking in of street dirt to the runways around the pool. The men's pool was located on the first floor, had a visitor's balcony, was lighted by high windows that are seldom opened, and was so arranged that it is practically impossible to track dirt to the edge of the pool.

Changes in the arrangement of the women's pool so that it is practically impossible to track in street dirt or mud resulted in the almost complete elimination of *Bact. aerogenes*.

Influence of Suspending Medium Upon Thermal Death Point

An important point is brought out by Fleischer and Amster (*Ztschr. F. Hyg.*, Vol. 99, p. 209) who have studied the length of time for which colon bacilli remain viable at 52° C. in various suspending media. Sugars, gelatin, pepton and various tanning compounds promote a longer viability while weak alkalies and concentrations of various salts in about tenth normal strength markedly reduce it. The differences are sufficient to indicate the need for great care in thermal death point studies. Thus in one experiment the bacteria survived for 50 minutes in distilled water, for 40 minutes in NaCl, 30 minutes in KCl, and only 10 minutes in CaCl₂ and MgCl₂, all the solutions being of tenth normal strength. In another test, the bacteria survived for 60 minutes at pH 5.0 and 6.0 while the survival time fell to 45 minutes at pH 7.1, to 30 minutes at pH 7.5 and to 10 minutes at pH 8.0.

Effects of Splenectomy on Tuberculosis

Splenectomy in rabbits followed by intravenous injection of tubercle bacilli causes definite changes in the distribution of bacilli and the lesions they produce according to investigations carried on by Foot. (*J. Exp. Med.*, Sept., 1923, xxxviii, 3, p. 263).

Pulmonary lesions are fewer and exhibit a larger number of polymorphonuclear leucocytes and contain as a rule more bacilli than do those of controls. Lesions in the liver are more numerous and destructive in splenectomized animals than in controls. There is not such a marked difference in the kidney but the tubercles are fewer and less well developed in the splenectomized animals.

The course of the disease is not affected materially by splenectomy, if anything it is slightly more rapid. The extra involvement of the liver more than offsets the decreased pulmonary infection.

Plans for the care, cure, and education of crippled children of the world—of whom it is estimated there are more than three hundred thousand in the United States alone—were laid before the conference in Elyria, O., September 25, of the International Society for Crippled Children. Delegates to the conference represented twelve states and two provinces of Canada.

HEALTH PUBLICATIONS REVIEWED

The Doctor Looks at Literature

The literati have not been enthusiastic about Joseph Collins' "The Doctor Looks at Literature." Critics of the book speak of his "attempt" at interpretation of modern fiction, and make light of his literal estimate of artistic values.

But no one, author or otherwise, likes the photograph of his own soul. What surprises the modern realistic writer is that what he is pleased to call the mirror of life may by others be held more strictly as documentary self-revelation. "Those who are experienced with the insane give great diagnostic weight to their writings, not only the orthography and the syntax, but the sequence of thought, the rhythm, the continuity of narrative, the pertinency of reference, the discursiveness of the narrative, and the way in which the writer develops and finally presents the central thought or idea." Why then should not the psychiatrist be permitted to apply this test of sanity to modern fiction writing, and why, if the emotional content persists instead of showing the normal tendency to return to a state of equilibrium, is it to be regarded genius in a writer and mere perversion in the man of the street?

Dr. Collins does not say that psychology is not the province of fiction writers. The warring of instincts and complexes he considers the very stuff out of which drama is builded. Well wrought studies of integration and disintegration take the highest rank in fiction. Even the literary contribution of a disordered mind may be of the highest value. Dostoevsky—an epileptic himself—is a master of portrayal of madness and bizarre states of the soul; Proust, master psychologist and novelist truly interprets the laws governing associative memory; the diarist group, excellent examples of shut-in personalities, none the less present invaluable gems of subjective thought. If, however, such authors as Joyce insist upon depicting a chaotic world in which no decent person would desire to live, and D. H. Lawrence is as ribald as he thinks his public will stand for, that is the other side of the effort of egocentric genius to force the world to its own individual viewpoint.

"The Doctor Looks at Literature"

is an interesting contribution. It presents a fresh viewpoint of the works of James Joyce, Fedor Dostoevsky, Marcel Proust, Katherine Mansfield, Rebecca West, Stella Benson, Fredric Amiel, Georges Duhamel, D. H. Lawrence, and J. St. Loë Strachey. Collins' own preference is for sane statement, coupled with rhythm and style. If he is impatient with the claims of incoherence, and with attitudinizing instead of honest confession, that is his right. The book is recommended.

George H. Doran Company, 1923.

Health Training in Schools

Miss Theresa Dunsill has prepared for the aid of teachers, nurses and other educational health workers an admirable series of outlines of health teaching for the grades with a long list of health stories to be used in interesting the children (selected from many sources) with detailed discussions for games and exercises and a series of definite projects useful in the teaching of the principles of cleanliness, the care of the teeth, nutrition, safety and the like. The Modern Health Crusade is basic in the plans outlined, but a wide variety of sources have been quoted and the book is supplemented by an excellent bibliography. It should be in the hands of every teacher of health.

National Tuberculosis Association, 1923.

The Worker and the State

Professor Frank Tillyard of the University of Birmingham has presented in this volume an altogether admirable review of British legislation bearing on industry. After a general survey of the relations of employer and employee under the common law and of the experimental fashion in which statutory legislation has been developed in this field the author reviews in detail the interference of the state in regard to wage payments, the complete and partial prohibitions of work (for children, both women and young persons and both adult males in dangerous employments), the regulations dealing with the safety of the worker and the regulations dealing with the health of the worker. The book is in

no sense merely a catalogue or topical summary but a reasoned philosophical discussion of the principles involved, enriched by numerous illustrations of actual cases which indicated the spirit in which the law has been interpreted. This spirit particularly as evidenced in the decisions of the House of Lords, the ultimate court of appeal, has been in the main characterized by a remarkable combination of wisdom and liberality. While the book is thoroughly readable it does, however, give the reader in the main a very complete picture of the past and present status of legislation in all the fields covered and the book will prove illuminating to every American worker in this field.

E. P. Dutton, New York, 1923.

Outlines of Medical Zoology

In this small book of 175 pages the three authors, R. W. Hegner, W. W. Cort, and F. M. Root, discuss respectively the protozoa parasitic in man, the worms parasitic in man and arthropods of medical importance. The book is far too technical to serve as a general introduction to the subject and it seems too condensed to be of very great value as a work of reference. It does include, however, some very interesting keys for the identification of members of the various groups and might be of assistance to field workers who had had a thorough basic training in zoology.

Macmillan Company, 1923.

Economics of the Household; Its Administration and Finance

This book by Benjamin R. Andrews seems to be designed primarily as text dealing with the household management problems and a consideration of the economic matters affecting it. The matters of income, expenditures, capital and savings, insurance, housing, food, clothing and other items are primary considerations in the adjustments of the economic plan to desires and ambitions. Whether the budget, expenditures and classifications are possible in the average home is a question, but even the most careless learn the advisability of planned expenditures over a period of time.

The Macmillan Company, New York, 1923.

Health Training in Schools

With the increasing emphasis upon this subject, this hand book by Theresa Dunsdil for teachers and health workers is invaluable. It is offered apparently as an inclusive course of study in practical hygiene for state and local school systems, to assist in the inculcation of actual health habits. The stories, examples and games introduced make the book an indispensable assistant. The outline is graded and constructed with reference to material included to facilitate and emphasize the points to be brought out for each group available from a wealth of experience and work.

National Tuberculosis Assn., New York, 1923.

The Family and Its Members

The author, Anna Garlin Spencer, has included in her text many of the moot points of social and family life. Material is presented carefully and thoughtfully, questions for review are attached to each chapter and a bibliography adds to its general value. The family as a social institution, its various immediate and more remote members are discussed in their different relationships. The standards, the means for enforcing standards and needs are all developed. It should make an excellent basis for the study and consideration of all deeply concerned with the adjustments and change of family life.

Lippincott, Philadelphia, 1923.

Body and Soul

A study of faith healing, by Percy Dearmer, with an inquiry into the effect of religion upon health consisting of the citation and discussion of cases presumably healed.

E. P. Dutton and Company, New York, 1909.

The Infant and Young Child

As a manual concerning the care and feeding of children from birth until school age, the present book by Morse, Wyman and Hill, fills a very real place. Bathing, feeding, growth and development, care and training, diseases and the thousand questions arising are all translated into readable, usable form. It is interesting to note that the authors state that a child two weeks of age may be placed outdoors with some precautions. This happens to be one of the features not usually emphasized in books of the type and yet one of the most necessary instructions for proper care.

W. B. Landers and Company, Philadelphia, 1923.

No Need to Stammer

The correction or treatment of stammering seems to be twofold, according to H. St. John Rumsey: psychical methods which correct the underlying emotional side and physical methods inculcating a right method of breathing and to correct, coordinate and re-educate the mechanisms involved in speech. The present book is simple, readable and suggestive of methods to overcome the imperfect use of articulating or vocalizing mechanisms, or the faulty coordination, such as simple exercise, proper breathing, and a careful analysis of causes.

Dodd, Mead & Company, New York, 1923.

Smithsonian Health Museum

The material being assembled for the Health Museum in the Smithsonian Institution in Washington includes gifts from various government departments, the American Red Cross, the Life Extension Institute and other agencies.

The monthly Digest of the National Health Council for September announces that the U. S. Women's Bureau has about completed an exhibit on industrial hygiene, the American Child Health Association is working on an exhibit on child hygiene, and the U. S. Public Health Service is to turn over the exhibits which have been returned from the exposition in Brazil. Surgeon General H. S. Cumming, chairman of the committee, is in charge of this health museum and Mr. James A. Tobey is secretary.

The Law and Disease Prevention

"A court decision important in the annals of health legislation" is the way the United States Public Health Service at Washington characterizes the recent ruling of the District Court of Appeals, Second District, Division 1, of California.

Marie Clemente, arrested and charged with conducting a disorderly house, petitioned the court for a writ of habeas corpus setting forth that she was being illegally detained and restrained of her liberty by the chief of police of the City of Los Angeles acting under instructions from the health department of that city not to release her until she had submitted to an examination ordered to be made by the health department for the purpose of determining whether she was affected with a contagious or infectious disease.

The District Court of Appeals held that information that a woman is not only conducting a house of ill-fame,

but also personally participating in the unlawful acts carried on therein furnishes reasonable ground to believe that she is affected with an infectious disease, authorizing the health department to enforce quarantine measures against her. The woman was remanded to the custody of the chief of police.

As far back as 1919 the United States Public Health Service, in a bulletin prepared by direction of the Surgeon General, V. D. Bulletin No. 39, advocated a model city ordinance which provided that all persons reasonably suspected of having a social disease in the infectious stage be examined by the health officer or under his direction. Whom might be considered a reasonable suspect in such cases has been a point of controversy in many localities. The recent decision in California, says the Public Health Service, helps to clear up this much debated question.

Heads New Bureau of Home Economics

Dr. Louise Stanley, a native of Nashville, and now dean of home economics at the University of Missouri, has been selected by Secretary Wallace to head the newly established Bureau of Home Economics of the U. S. Department of Agriculture. She assumed her duties September 1.

About fifty employees will be attached to the bureau Miss Stanley will administer, and about \$72,000 a year will be required to maintain its activities. She will receive a salary of about five thousand dollars a year.

BOOKS RECEIVED

- THE PHILOSOPHY OF MANAGEMENT. By Oliver Sheldon, pp. 286. Sir Isaac Pitman & Sons, Ltd. London, England.
- CONSTRUCTIVE CONSCIOUS CONTROL OF THE INDIVIDUAL. By F. Matthias Alexander, pp. 317, with introduction by Professor John Dewey. E. P. Dutton & Company, New York City, 1923.
- THE ELEMENTS OF PUBLIC HEALTH ADMINISTRATION. By George Sparr Lockett, A.B., M.D., and Harold Farnsworth Gray, B.S., M.S., G.R.P.H., pp. 460. P. Blakiston's Son & Company, Philadelphia, Pa., 1923.
- THE CONQUEST OF NERVES. By J. W. Courtney, M.D., pp. 209. The Macmillan Company, New York, 1923.
- HABITUAL CONSTIPATION: ITS CAUSES, PREVENTION, AND RATIONAL TREATMENT. By Jemar Boas, M.D., Professor of Medicine in Berlin, pp. 299. Funk & Wagnalls Company, New York, 1923.
- MENTAL HYGIENE AND THE PUBLIC HEALTH NURSE. By V. May Macdonald, B.N., pp. 67, with a foreword by Thomas W. Salmon, M.D., J. B. Lippincott Company, Philadelphia, 1923.
- EXERCISE FOR HEALTH AND CORRECTION. By Frank D. Dickson, M.D., and Rex L. Dively, M.D., pp. 127. J. B. Lippincott Company, Philadelphia, 1923.
- MEDICAL BIOSTATISTICS. By Raymond Pearl, pp. 379. W. B. Saunders Company, Philadelphia, Pa., 1923.
- THE BIRTH OF PSYCHE. By L. Charles Bandelin, translated by Fred Rothwell, pp. 211. E. P. Dutton and Company, New York, 1923.
- INTERNATIONAL CLINICS. Edited by Henry W. Cattell, A.M., M.D., with the collaboration of fourteen of the foremost physicians and surgeons in the United States, pp. 311. J. B. Lippincott Company, Philadelphia, Pa., 1923.

To Rid the World of Leprosy

(Continued from page 801)

further work, looking to the elimination of leprosy from that continent.

The investigation so far conducted indicates that leprosy exists in all the countries of South America except Chile. Colombia seems to have a larger leper population than any other one of the South American countries, although the proportion is high in Venezuela, Ecuador, Brazil, Argentina, and Paraguay. The disease exists chiefly in those countries where there is a considerable negro population or population of mixed blood.

In the leper hospitals the majority of patients are colored people. The prevailing attitude is not one of deep-seated, widespread abhorrence of the disease. Indifference to the conditions and the permitting of lepers to go on the streets can only be corrected by an educational campaign. It seems that only when patients become a burden to relatives or so disfigured that they cause disgust are they reported to the authorities.

Of the ten Republics, only four—Venezuela, Colombia, Ecuador and Brazil—have laws which may be considered stringent regarding the segregation of lepers. These four maintain official leper hospitals; but even in these countries the laws, good enough in themselves, are not rigidly enforced. Our investigation, says Dr. Danner, emphasizes the fact that officials of most of the countries would welcome any scientific help or suggestions for combating the disease.

This leads to the natural question of methods of cooperation by which South America can join forces in nation-wide, then continent-wide policies for ridding the whole world of leprosy. It is obvious how necessary it will be to extend operations into every area of the world where lepers are found and bring about governmental cooperation in the segregation of all lepers that they may receive

proper care. And when that has been done the day will be near when the world will be rid of leprosy. The claim of the world's lepers upon our sympathies, the preventive duty to ourselves and our neighbors, can not go unheeded. The task is real; the need urgent; it is at hand; it must be met.

Governmental action will follow upon the right leadership. Segregation will come as an economic policy. Humane care and oversight will re-

treated—another invaluable feature of segregation, viz., the opportunity for treatment of the disease in its insipient stages.

It is a governmental duty to learn of every case of leprosy within a country, immediately segregate the unfortunate victim, surround him with care and consideration, and, in the case of parenthood, save the child. Thus we protect society, which means our own families.

It is one privilege of the Mission

to Lepers to provide for the intellectual welfare, the social happiness, and the spiritual development of such wards of Governments.

Need for employment of their time should not be overlooked. Not alone suffering, but idleness has been the leper's portion in the past. Shut out from every human occupation, their minds have been undeveloped while

their bodies wasted. Minds as well as bodies must be rebuilt. Work for those still able is a godsend.

Partly as a result of the activities of the Mission to Lepers, the Governments of many lands are taking new heed to the leper question. They are persuaded that segregation is the beginning of the solution of the leper problem.

One encouraging phase of this governmental interest is the adoption of methods advocated by the Mission to Lepers in regard to the class of house for lepers and the general arrangement and management of leper colonies and settlements. Another result is the education of the public upon the subject of leprosy to the point where it is now believed a forward advance is possible that will rid the world of leprosy.

Wyoming has passed an act (*Ch. 63, Laws 1923*) to promote the health of employees in coal mines by providing bath houses at coal mines and prescribing penalties for its violation.



One of the modern bath houses at the National Leprosarium, Dominican Republic.

sult. Thousands upon thousands of hopeless lives will be transformed. At least one festering sore in humanity will be healed, and the world will be rid of this foe to its health and happiness.

Saving the Untainted

What may be called the most important phase in the segregation of lepers is the isolation of children from their parents in the hope that they have escaped the taint and will develop into sound men and women. Leprosy is not hereditary, and of course everyone who comes into contact with a leper does not contract the disease. However, one of the most obvious ways by which leprosy may be propagated is association of leperous parents with their children. In providing means for their early separation, always with regard for the parent's feelings and willing consent, society receives its greatest protection.

Occasionally a child of lepers shows signs of the disease and is separately

Rural Health Problem

(Continued from page 787)

subjects relating to agriculture and home economics, and to encourage the application of the same." Our state law which establishes the cooperative work in counties defines it as "agriculture, home-making, and country life." Yet nearly everything that we do has a bearing on health matters. Everything that increases income and profits helps to meet the basic need of money with which to purchase necessities. Every saving of time and strength to the farm woman means a chance for health. Every broadening contact means broadening of vision and understanding. Every farm garden, followed by canning and storage, means better diet. Every boy and girl who does food club or garden club or canning club work gets a better understanding of some health matters. Yet all these things are but incidental in their health bearing.

You ask what we see ahead in these matters. We see light. We have learned one thing in our extension work. We must not do things for people. Our task is to focus the attention of farmers and home-makers on their problems; to help them plan for the solution of these problems; to place at their disposal any resources which may be in our possession. It must, however, always be the people

themselves who do the work.

By parallel reasoning, I feel that it must be the people themselves who solve their health problem, under the guidance of the expert. The communal matters of water supply and sewage disposal and control of nuisances should be met by community action, and because the community feels the need. The other matters of home construction and personal habit and hygiene can never be successfully legislated or policed into existence; they will come only when the rank and file of people want them. The problem is therefore in no small part to make people want them.

In summary then, the problem reduces itself to two major elements: (1) The inculcation of a general and compelling desire for improvement of health conditions. This is essentially a problem of education and suggestion, in which I believe the demonstration method of agricultural extension work may well be considered as a possibility by the health-education agencies. (2), Adequate income to make the necessary physical provisions for sanitation and reasonable comfort. This, too, is a problem of education and adaptation, and one to which we are giving our major effort as extension workers in agriculture and home economics.

Australian Maternity Bonus

THE All Australian Women's Conference on the Maternity Bonus was held in Melbourne, in March 1923, for the purpose of discussing the benefits and defects of the Maternity Bonus Act that was introduced in 1912. Several papers, contained in the May issue of *Health*, the monthly journal of the Commonwealth Department of Health, present varying opinions expressed at the conference.

Edith Barrett, honorary home secretary of the Victorian National Council of Women holds that the motherhood of Australia is not receiving the best value from the bonus. She says:

There is no doubt it was thought at first that it would only be claimed by those who were not well-to-do. It is, as a matter of fact, claimed now by practically all women who give birth to children, irrespective of their financial position. For the year ending June 30, 1922, the bonus was

paid in the Commonwealth to 138,140 women. The total expenditure, including administration, was 706,000 pounds, of which approximately 15,500 pounds was expended on administration.

When it (the bonus) was introduced it was supported by very varied arguments. Those who took it most seriously asserted that it would increase the birth rate, or at least arrest the decline; that it would diminish the maternal and infantile mortality, and render a difficult and dangerous period in woman's life safer, and thus conduce to the national welfare.

Other people, fairly numerous, took the view that money spent in this way would do none of these things; that, if it were desired to effect the results mentioned above, the money could be better spent in other ways by providing institutions to which women could apply for instruction and help. More than ten years have passed, and it is now possible to form some idea of the result.

Miss Barrett thinks that the bonus has failed to produce the desired re-

sults. In support of her stand she cites the fact that the birth rate has since the introduction of the bonus, steadily and seriously declined. In 1907 the rate was 26.8 per 1,000 population; in 1921 the rate was 24.9.

It is also claimed that there has been no substantial reduction in the puerperal death rate and that the reduction in infant mortality has been trivial; much less than the reduction in other countries during the same period. The number of women attended at childbirth by a doctor has doubled since the bonus went into effect.

The author claims that while medical attention has increased there has been no reduction in mortality commensurate with the annual expenditure, and recommends (1) that existing state maternity hospitals be subsidized and aid extended to existing private hospitals, and others established where necessary; all to have ante-natal and postnatal clinics, and externe midwifery. It is recommended that (2) maternity convalescent homes be established and subsidized, and (3) help obtained for mothers confined in their own homes. Financial aid should be available (4) for bush nursing, district nursing, baby health centers, and other child welfare work, and resident nurseries and crèches in certain cases; and (5) means of dealing with exceptional cases, too far away to benefit from these schemes.

Dr. Marie Brown, delegate to the conference from the School for Mothers Institute, the Women Graduates Association, and the University Womens Union of South Australia, recommended a plan much like the one just described, believing that more could be accomplished with the available funds if they were expended for supervised care of mothers, and that the saving effected would leave a sum of money free for direct financial aid in cases of real need. New points suggested by Dr. Brown included a plan for trained domestics to help women confined at home and aid for increased scientific research in matters relating to the health of infants and pregnant mothers.

Women should not need paying for bearing children. That is part of their natural function and what they should willingly do. It should be a pleasure and a glory.

The bonus is often called the recognition of motherhood. Motherhood needs no recognition—it shouts for itself—but it should be made a normal and natural function, and not a disease.

Mrs. MacCallum, president of the National Council of Women, New South Wales cited the findings of the Council Committee that investigated this question. These findings were:

(a) That the majority of mothers do not abuse the bonus, but on the contrary obtain better medical advice and nursing services than they otherwise could.

(b) That any saving affected by a discrimination in income is not calculated to make much appreciable difference economically, and that it is better that no class distinction be made.

(c) That the bonus scheme, which reaches every mother in the Commonwealth, should not be superseded by any scheme less universal in its application.

(d) That the wish of the majority of mothers to be in their own homes should be recognized and respected.

(e) That the bonus scheme should be amplified by provision of facilities for pre-natal and post-natal care throughout the Commonwealth.

Of the 690,700 pounds paid out in the Commonwealth for the year ending June, 1922, only twenty-nine thousand pounds was paid to people whose incomes exceeded three hundred pounds. It is estimated that the administrative cost of discrimination would amount to the sum thus saved. The social aspect of the case must also be considered and under the present arrangement no stigma is attached to the bonus. Moreover, those receiving the bonus who are really able to pay the expenses, do pay for it themselves by taxes used in part to cover the bonus paid to others. "It should also be remembered that this is the only attempt to tax the single, the childless, and those past the age of rearing families, for the benefit of those who are having children.

The advocated policy of paying the funds direct to hospitals rather than to mothers is opposed to on the grounds that freedom of choice of doctor is no longer possible.

Mrs. MacCallum maintained that the bonus had been a great blessing to mothers and that no satisfactory substitute for it can be suggested, but that it should be supplemented by other schemes.

Miss Heagney of the Clerks' Union, Victoria, stated that the purchasing power of the five pound bonus was reduced nearly to three pounds in 1920, and is now worth three pounds, nine shillings compared to its 1913 value. She believes that the maternity allowance should be retained and that provisions should be added for a public maternity service and the endowment of motherhood.

There seemed to be quite a general agreement at the conference that bet-

ter provisions for ante-natal and post-natal care are needed. There was a difference of opinion as to whether or not the cash maternity bonus of five pounds was money well invested.

Control of Goitre in Central Europe

The control of goitre by the addition of potassium iodide to the common salt on sale in affected regions has become an accepted procedure in Switzerland (*Schweizerische Medizinische Wochenschrift*, March 1, 1923, p. 245) and has been strongly advocated in Austria (*Mitteilungen des Volksgesundheitsamtes*, March 24, 1923, pp. 81 and 100.)

Insurance Companies Cooperate in Statistical Study

An important contribution to American vital statistics has been made by the publication last April of a report on the mortality experience of industrial policy holders 1916-1920, based on the joint experience of the Colonial, John Hancock, Metropolitan, and Prudential Insurance Companies, and the Life Insurance Company of Virginia. These companies in 1920 included in the active membership of their industrial departments 26,000,000 men, women and children, not far from one quarter of the entire population of the United States and Canada, so that the data are of unique value. They are analyzed by age and principal causes of death for the period 1916-1920 in essentially the same form used in the earlier reports on mortality of insured wage earners issued by the Metropolitan Life Insurance Company.

Alliance for Care of Mental Disorders

What is believed to be the first instance in England of an alliance between a general hospital and a special hospital for the care of mental disease is a scheme recently approved whereby the Middlesex Hospital has opened two new wards for men and women, respectively, for the treatment of functional disorders of the nervous system. The patients will be under the care of the medical staff and nurses of St. Luke's Hospital for Mental Disease. Both hospitals share funds, material, and experience and service of the staff as may be necessary.

The resources of the general hospital in the nature of special examinations, medical and surgical treat-

ment and the like are available for the patients. (*Brit. Med. Jour.*, July 7, 1923, 3262, p. 31.)

Exhaustive Study of Aromatic Arsenical Compounds

Fourneau, Navarro-Martin and Trefonal (*Ann. de l'Inst. Pasteur*, Vol. 37, p. 551) present the results of a very exhaustive study of the various derivatives of $C_6H_5AsOH_2$ from the standpoint of toxicity on the one hand and of power to destroy trypanosomes and spirochaetes on the other. The quantitative relationships resulting from the substitution of varying numbers of amino and hydroxyl radicles at various points in the molecule are presented in detail. For the treatment of trypanosome diseases $C_6H_5(NH_2)_4(OH)_2(AsO_2H_2)$ combines highest parasitocidal value with lowest toxicity while $C_6H_5(NHCOCH_3)_4(OH)_2(AsO_2H_2)$ when administered by mouth is said to prevent and cure syphilis.

Milk-Borne Gastroenteritis

Positive proof of a typical bovine paracoli infection conveyed by milk to man has been reported by Christensen and Grinstead. (*Hospitalistidende*, April 11 and 18, 1923). Claim is made that, with the possible exception of a case reported in the *Journal of Infectious Diseases* by Meyer in 1916, this is the first instance in which conclusive evidence of such conveyance of infection has been obtained.

An epidemic of gastroenteritis occurred in a large hospital. Thirty-nine of the staff and 56 of the patients became ill; all recovered. It seems that on October 9, 1922, a cow on the farm supplying milk to the hospital, was taken ill with an offensive diarrhea and a temperature of 40° C. The milk had been mixed with that of the other cows and on the morning of the 11th cases appeared at the hospital. One patient admitted on the 10th was among those infected, showing that the incubation period was very short, while those admitted on the morning of the 11th escaped. On the night of the 11th-12th the cow died and necropsy showed definite signs of septicemia.

There is in Denmark a disease of calves known as "paracoli bacillosis." Adult cattle are usually considered immune. (*Lancet*, July 7, 1920, p. 26).

Senate Bill 22 of Ohio, effective July 29, makes the state narcotic laws conform to the Federal statutes.

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INEXPENSIVE, COMFORTABLE, HYGIENIC and SAFE — KOTEX

Hetch Hetchy Water Supply of San Francisco

(Continued from page 767)

and transmission lines from Moccasin Creek to San Francisco. The aqueduct through the Sierra foothills will be a tunnel, similar to that in the Mountain Division. The San Joaquin Valley will be crossed by steel pressure pipes, extending forty-five miles from Oakdale portal to Tesla portal. To develop the ultimate capacity of four hundred million gallons per day, three pipes of about seven feet diameter will be required. The detailed

very probable that with no other additions, water shortage would occur before the entire Hetch Hetchy aqueduct can be completed. Increased consumption from sources already developed east of the Bay, is limited by the capacity of the Spring Valley Water Company's bay crossing pipe line, which closely parallels the route of the Hetch Hetchy Aqueduct in this division. Rather than permit the corporation to invest capital in adding

to the capacity of the existing pipe line, San Francisco chose to construct the Bay Crossing Division of the Hetch Hetchy aqueduct in advance of the intervening links. Accordingly, plans have been prepared for a five-foot steel pipe line twenty miles long, between Irvington and a point three miles west of Redwood City. The right of way is being purchased for an ultimate installation of three pipe lines, each six feet four inches in diameter. Across the marshes adjacent to Dumbarton strait the pipe will be laid on trestles, and across the shallow part of the bay on a steel bridge. The channel crossing will require submarine construction—probably two three-foot pipes for the first unit.

Pulgas tunnel will connect the westerly end of the Bay Crossing Division with Crystal Springs reservoir. The tunnel is 8,700 feet long, and 97.94 square feet in net area.

Pulgas Tunnel is being constructed by Grant Smith & Company under contract for an estimated price of \$683,050. It was begun in August, 1922. Excavation is now about 65 per cent completed, and concrete lining has been commenced.

Upon its completion, the aqueduct from Irvington to Crystal Springs reservoir will be rented to the Spring Valley Water Company, and so used to carry water from Alameda County into San Francisco, until such time as the connecting links with Hetch Hetchy are completed.

Several units of the system will be enlarged or added to as demand for

water and power increases. O'Shaughnessy Dam will be raised from 226 feet to 312 feet. Lake Eleanor Dam will be raised. Two more power units will be added to the Moccasin Creek plant and new plants will be installed, utilizing the fall of water from Hetch Hetchy and Lake Eleanor Reservoirs to the aqueduct intake. A second transmission line will be built to San Francisco, and parallel steel pipes will be laid across the valleys until the ultimate capacity of four hundred million gallons daily is reached.

Department Store Health and Recreation

The department store of Gimbel Brothers in New York City has a force of employes that varies during the year from 3,800 to 5,000. About 55 per cent of these are women. All female applicants are seen by the nurse at the time of employment though physical examinations for employees are not compulsory.

The medical department consists of a suite of three rooms; one being the office of Miss M. B. Squire, the head nurse. Near the medical department on the second floor is located the store nursery, where mothers may leave their children in charge of a nurse while doing their shopping.

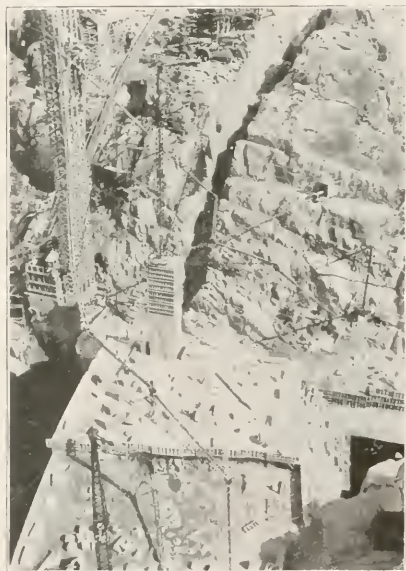
On the top floor of the building the company maintains a cafeteria in charge of a graduate dietitian. Here the employees may purchase meals at cost or if they prefer they are allowed to bring their lunch and eat it in the dining room.

Three recreation rooms are also provided. A nurse directly in charge of this portion of the work directs the dancing and group singing. There is also a portion of the roof sheltered by awnings that is used for recreation and rest.

A weekly absentee list is supplied to the medical department. "Coordinators" in each department report those employees living alone and extended absences reported for any of these lead to investigation.

During the month of April, 1923, 1,072 visits were made to the medical department; 809 visits from women and 263 from men. Dressings and treatment totalled 1,024, compensation cases 55, and customers 25.

All activities are supported by the company. There are no group benefit organizations or clubs.



O'Shaughnessy Dam under construction.

plans for this section and for the Coast Range tunnel have not been definitely fixed, and the program of construction will be partly determined by the action of the municipalities around San Francisco Bay in the matter of forming a water district.

The Coast Range will be penetrated by pressure tunnels, 31.5 miles from Tesla Portal to Irvington Gate House, broken by a steel siphon crossing the canyon of Alameda Creek. The hydraulic grade rate of this tunnel will be less than the slope from Moccasin Creek to Oakdale Portal, the tunnel crossing section being made larger than in the Sierra Nevada.

As the present water supply system of San Francisco is being used to its full capacity as now developed, it is



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Physical Condition of Jewish Children

(Continued from page 770)

be obtained. However, as a slight basis of comparison are presented the results of the physical examination of a group of school children in Detroit, Mich.

Early in 1922, medical inspectors of the Department of Health, Detroit, completed the examination of 8,887 school children, who were found on previous examinations to be 15 per cent or more underweight. Among these subnormal children 6,662, or 74.9 per cent were found to have one physical defect or more. Defects appearing most frequently were enlarged or infected tonsils and defective teeth.

Now among the children examined in Poland, 79.2 per cent are made up by such defects as tuberculosis, rachitis deformities, and other serious diseases outside of enlarged or infected tonsils, which Polish physicians did not think important enough to report in the face of more serious ailments.

The findings with regard to the incidence of tubercular infection (latent stage) among the Jewish children in Poland, as presented as Table IV., are compared in Chart I with the incidence of latent tubercular infection, as revealed by the tuberculin skin reaction, among the children of the poorer classes in Vienna, before the

war. Vienna has long been known as a city with a very high tuberculosis rate. The percentages are taken from the Children's Clinic of the University of Vienna. (Prof. Pirquet.)

We see that in Vienna there is an increasing rate of infection with the increasing age of the child. This is what we should expect, for with increasing age the sphere of human contact widens for the child, thereby enhancing its chances for infection. Chart I shows for every age but one, a higher rate of infection among the children in Poland than that for Vienna children. The fall of the curve for Polish children at the age of five is surely due to the fact that only a small number of children (80) have been tested with tuberculin.

The question of tuberculosis among the Jews in Poland presented some unexpected phenomena. Thus upon the study of this question it became evident that while the disease incidence was very high among the Jews of Poland, yet the mortality rate from tuberculosis was lower than that among non-Jews. The object of this paper was to show that the waste of war was not merely on the battle field and upon the national treasury, but also on the most precious possession of the nation—the child.

A Fresh Air Camp for Children

(Continued from page 772)

marked increase in the average weight: Entrance: Weight, 49; Height-Weight Index, 84. Discharge: Weight, 54.9; Height-Weight Index 93.5.

The greatest individual gain was 9.25 pounds, the least gain 1.12 pounds.

Still more astonishing was the sharp rise in the hemoglobin index. The figures are quite illuminating: Entrance Hemoglobin, 64.6; discharge hemoglobin, 81.5.

It is the intention to follow these cases up during the winter months in order to determine whether the improvement will be transitory or permanent. With proper supervision and proper food there should be no retrogradation.

The camp was operated over a period of approximately six weeks, July 9 to August 25, 1923. The total budget amounted to \$2,304.97 apportioned as shown below. It must be borne in mind

that the initial outlay for permanent supplies and equipment should not be charged against operating costs because they can be used from year to year.

Investment in Equipment

Furniture	\$144.80
Lumber	19.40
Hardware	81.00
Household goods	468.40
Plumbing	80.40
Kodak	25.00
Total	\$869.30

Operating Costs

Groceries	\$512.49
Milk and bread	246.87
Laundry	34.50
Insurance	53.20
Fuel	38.50
Telephone	14.85
Drying	49.50
Salaries	396.00
Miscellaneous	90.15
Total	\$1,435.67

The actual per capita operating cost of the camp was therefore \$63.97, a very nominal amount considering the benefits derived. The cost can be still further reduced next year due to the fact that the same personnel can take charge of a larger number of children than were cared for this year.

Every person directly interested in the camp is highly elated with the outcome. It has served to add further stimulus to public sentiment already alive to the tuberculosis problem of the community. Plans are being enthusiastically pushed in anticipation of a camp in 1924 capable of accommodating at least fifty children.

Koelsch reports symptoms of illness identical with those of brass founders' ague, observed in workers at a hot copper rolling plant in which the rolls were directly water-cooled. These observations, taken together with isolated reports in the literature and animal experiments lead the author to the presumption that similar symptoms may occur as the result of inhalation of the vapor of all heavy metals. (*J. Indust. Hyg.*, July, 1923, v. 3, p. 87.)



Exercise by means of popular games a part of the camp routine.

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Pyorrhea, scalp troubles, degenerative disease—

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During the past six years, extensive experiments have been conducted on scores of individuals, under the strictest scientific con-

trol. It has been definitely established that fresh Fleischmann's Yeast stimulates peristalsis, at the same time softening the fecal masses; and that it acts as a bowel regulator, rather than as a purge.

Best results are obtained by eating one cake half an hour before a meal or the last thing at night—followed by a glass of water. If desired, the yeast may be first dissolved in water, milk or fruit juices.

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Cardiac Clinic of the Michael Reese Dispensary

(Continued from page 774)

taught in the hospital. In this manner, diversion is furnished for children while resting at home between the period of their hospitalization and their return to school. Interest in reading and the use of the public library is also stimulated as well as the use of meccano sets for the boys who are mechanically inclined.

The problem of medical follow up or medical supervision applies to all patients under observation in the cardiac clinic whether known to other agencies or not. This involves constant follow up to see that all laboratory work recommended is completed, that the patients report to other clinics for consultations and recommendations as well as that they return regularly to their own cardiac department. In this medical follow up work, the school nurses have been cooperative in using their influence for the return of the school children and in supervising some of the more difficult children in their home and school activities. The use of the mental hygiene clinic, recently established in the Dispensary has likewise proved a valuable resource in the treatment of cardiac children who present behavior problems.

In this brief survey of the work of this department, it might be interesting to note a few figures which indicate the scope of the cardiac problem as it exists today in the Michael

Reese Dispensary. During the six month period from June, 1922 to January, 1923 there were under observation in the cardiac clinic, 90 adults and 72 children making a total of 162 patients. In relation to the type of service rendered these patients by the social worker they may be classified as follows:

	Social case	Clinical	
	work	follow up	Total
Children...	24	24	72
Adults...	41	26	90

These figures readily show how much remains for development in this field of work. What of the 33 per cent of all the children in the clinic whom the social worker and physician know only through their slight contact during the busy clinic hours? What of the 25 per cent of adults whose home and working conditions are unknown except as we learn them in the routine interview at the first visit?

This department is constantly working with the Association for the Relief and Prevention of Cardiac Disease in Chicago as well as with the cardiac section of the Illinois Conference of Hospital Social Workers. Through these organizations, we are attempting to study the common problems in the cardiac field and to work toward their solution through the development of more adequate resources for both medical and social treatment of patients suffering from cardiac disease.

through congested automobile traffic causes a far greater number of casualties every day than football does in several years.

"Not all boys should be allowed to play football, however. Naturally, those who already suffer with some physical handicap cannot be permitted to take part. By physically handicapped we mean not only those who are obviously crippled, but also those who suffer from organic trouble, such as disease of the heart or lung. Therefore, before allowing a boy to play football he should be given a complete examination by a physician in order to determine his physical condition.

"There are two classes of injuries which may happen to a boy in a football game. The first which is of fairly frequent occurrence is the ordinary 'knockout.' Usually such an injury is unimportant; most often it is caused by a blow in the pit of the stomach which temporarily 'knocks the wind out,' or by a sudden blow on the head. In a moment or two the boy is up, none the worse for the shock. The second class of injury, which is relatively infrequent considering the number of boys who play football, includes dislocated joints and broken bones. The most frequent dislocation is of the shoulder. This can readily be put back by a physician, and in a short time the boy is as good as ever. The bone most commonly broken is the collar bone, less frequently the arm or leg. These more severe injuries to the bones and joints are much less likely to happen to the boy who has been properly conditioned or 'trained' and coached for the game. One of the points learned through competent coaching is how to fall when so tackled that a fall is inevitable. Just as for the screen the 'movie queen' can drop in a most realistic faint without hurting herself, so on the football field the boy may be taught to fall in such a way that there is practically no danger of broken bones. One seldom sees such injuries to the members of the great university teams where competent trainers and coaches are in constant supervision."

Summing it all up, if a boy is in good physical condition, if he has been properly trained, and if the team is well coached, he should not only be permitted but he should be encouraged to play football. "The boy is father to the man, and he will be a better man and a better citizen for having played the game."

Football and Health

FOOTBALL as affecting the health of the American boy was discussed by Dr. Matthias Nicoll, Jr., State Commissioner of Health, in a recent radio address, broadcasted from the General Electric Company's Station, WGY, at Schenectady.

"Football," said Dr. Nicoll, "goes far toward putting into a boy those qualities which make for real American citizenship. The game requires the suppression of the individual's craving for personal glory and promotes team play, and in modern life team play is the essential most in demand.

No father or mother wants his or her boy to be a "sissy," and football is one

of the best preventives.

"For many years the game of American football has been looked upon as a sport extremely dangerous to those taking part in it. Unquestionably twenty years ago there was a considerable element of danger attached to the game, but as a result of modifications of the rules of play in recent years, the hazard is far less than formerly. We do not mean to imply that the game even as it is played today is entirely free from the risk of bodily injury, but under modern conditions one cannot play or work or even live without constantly facing danger of some kind. As a matter of fact crossing city streets



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do and why for over a quarter of a century they have remained the standard and most widely prescribed remedy for the relief and treatment of Hemorrhoids, and the rectal disturbances leading up to Hemorrhoids.

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Heathized Products Co.
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The Prevention of Typhoid Epidemics

(Continued from page 776)

Date	Location	Cases/Deaths	Medium by which infection was caused	Vehicle by which bacteria were conveyed	Determination of Source	Remarks
December 1918	Stratford	4	Water	Sewage	Negative	Heavy rain washed contents of cesspool into well
December 1918	Stamwich	7	Food	Carrier	"	Blood and stool tests showed five women carriers of Sem-tioid mard at intake asylum to be carriers.
August 1919	Plainville	15	Milk	Sewage	"	Milk cans infected by being carried in wagon used for carrying night soil. Contact from waiting case
August 1919	New London (Groton)	16	Unknown	Unknown	"	2 Cases on house boat. Probably infected others visiting them
September 1919	Norwalk	6	Water	Sewage	"	2 Cases bathed near sewer outlet. Suspected carriers
1919	East Haven	7	Unknown	Unknown	"	All cases in same family
Sept-Nov 1919	Portland	4	Food	Glans	"	One case ate raw clams from beach west of New Haven and passed as infected
Oct-Nov 1919	Middletown	5	Unknown	Unknown	"	4 of the cases took milk from same dealer but it was apparently not suspected
December 1919	Eastford	4	Food	Carrier	-1	Boarding housekeeper a carrier
December 1919	Windsor Locks	4	Unknown	Unknown	"	"
July-Aug 1920	East Hampton	14	Water	"	"	Tape line to camp trashings broken
July-Aug 1920	Eastford	24	Milk	Carrier	Positive	Driver delivering milk was carrier
Sept 1920	Eastford	37	Milk	Carrier	Positive	Contact infected milk handler
Oct-Nov 1920	New Haven	14	Food	Ice Cream	"	"
Nov 1920	Eastford	37	Food	Carrier	"	"
Jan-Feb 1921	Thompsonville	20	Food	Carrier	"	"
Jan-Feb 1921	East Groton	18	Food	Carrier	"	"
Jan 1921	Norwalk	7	Milk	Water	Negative	Water supply was condemned

for the period of the statistics. Two of these regions are rather heavily polluted while the other is not and the rates of all three are about the same. Mr. Doman said, "At first glance, it seems surprising to note that the two pollution predominating areas have typhoid morbidity rates that do not differ materially from that of the Litchfield region in which pollution may be regarded as negligible. In none of the three regions just considered is there extensive direct contact, and assuming comparable effects from other sources and means of transmitting typhoid, it is only logical that the morbidity rates for the three regions should not differ materially because of varying amounts of pollution."

In the two other regions in which vacationing and pollution are co-existent there is considerable direct contact between human beings and bodies of water receiving tremendous

amounts of sewage pollution. These regions represent a combined population of about 475,000, the morbidity rate being 40.9 per 100,000 or 129.0 per cent of the state average or 212.0 per cent of the average for the three regions mentioned above.

Mr. Doman continued, "However significant the typhoid morbidity figures may appear, I do not think that we are justified at this time in making the definite statement that water-courses polluted by domestic sewage act as a means of transmitting an appreciable amount of typhoid in this state. Before reaching so definite a conclusion, it must be realized that a great many details, not herein mentioned, must be considered. However, it is quite possible and it seems reasonable to believe that where we have considerable direct contact between human beings and bodies of water receiving enormous amounts of domestic sewage, more or less typhoid may be contracted."

Maternal and Infant Mortality Rates*

How the United States Stands in Relation to Twenty-Two Foreign Countries			
Country and year	Maternal Rate	Infant Rate	
U. S. Birth Registration Area.....	6.5 (1923)	76 (1922)**	
Australia, 1921	4.7	66	
Austria, 1920	7.3	155	
Belgium, 1919	7.5	103	
Chile	2.0	278 (1921)	
Denmark, 1921	2.0	75	
England and Wales	3.9	83	
Finland	4.4 (1913)	97 (1920)	
France	4.9 (1914)	119 (77 Depts., 1919)	
Germany	4.9 (1918)	133 (1921)	
Hungary, 1916	4.0		
Ireland, 1920	6.5	83	
Italy, 1917	3.0	139	
Japan, 1921	2.6	168	
Netherlands, The	2.3	86	
New Zealand	5.1 (1921)	42 (1922)	
Norway	3.0 (1917)	62 (1919)	
Scotland	6.2 (1919)	90 (1921)	
Spain	6.2 (1915)	156 (1919)	
Sweden	2.6 (1917)	65 (1918)	
Switzerland	5.6 (1915)	84 (1920)	
Union of South Africa	3.9 (1919)	83 (1921)	
Uruguay, 1920	3.4	117	

Judge a Medicinal Mineral Oil by its Viscosity

BAINBRIDGE says, [Women's Medical Journal], "Liquid Petrolatum [medicinal mineral oil] is the agent which by common consent is pronounced the most satisfactory in the treatment of chronic intestinal stasis. - - - Some products are too thin, and consequently give rise to "dribbling", which is not only extremely disagreeable, but defeats the purpose for which the oil is given.

The London Lancet states that "oil of too easy fluidity [low viscosity] frequently has a disturbing effects upon the digestion."

Stanolind Liquid Paraffin [Heavy] — Tasteless, Odorless, Colorless — is a new medicinal petroleum product. It is a mineral white oil of ideal viscosity for the treatment of intestinal stasis.

Stanolind Liquid Paraffin is rich and heavy-bodied, and has specific gravity of 0.891 to 0.895 at 15 degrees C [59 degrees F]. Its viscosity is 300-310 Saybolt at 37.7 degrees C [100 degrees F].

Judged by its viscosity, as well as by its specific gravity and its absolute purity, Stanolind Liquid Paraffin [Heavy] meets the most exacting requirements of the medical profession.

STANOLIND LIQUID PARAFFIN

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STATEMENTS appearing in the public press, to the effect that Iletin is available in very limited amount and is very high in price, are erroneous. Eli Lilly and Company are in position to supply quantities adequate to any conceivable demand at the very favorable prices quoted below:

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Effective October 15th, 1923

U-10, 5 c. c. Ampoule Vial containing 10 units to the c. c. (50 Units).....	\$1.10
U-20, 5 c. c. Ampoule Vial containing 20 units to the c. c. (100 Units).....	\$2.00

The increase in the strength of the Unit together with the reduction in price per 5 c. c. package is equivalent to a *reduction* of one-half from the prices prevailing previously.

It is the avowed policy of Eli Lilly and Company to price Iletin as low as consistent with a perfect product, efficient distribution, and a moderate manufacturing profit. Believing that Iletin should reach the consumer at the lowest possible price the thoughtful co-operation of physicians and distributors is invited.

Sincerely,

PRESIDENT ELI LILLY AND COMPANY

Problem of the Delicate Child

(Continued from page 778)

child may have all the rarebit she wants." It makes so much less difference to an adult than a child how his diet is arranged that parents need definite information. They think of their children in terms of themselves, like the little boy who wanted to find a baby policeman, and said with flowing tears that he had looked into every perambulator on the avenue and there "wasn't a little policeman in one of them!" We shall have to give parents the facts. Men and women must realize that instinct is of no account in civilization.

Witness the Guernsey calf! The high state of milk production brought about in its mother is death to the calf if the two are left together. The

restraining hand of man must keep the offspring from killing itself by enjoying its own mother's luxuriant milk flow. Such is the price of "civilization."

With opportunities to indulge in all sorts of one-sided, ill-assorted diets, we must have intelligent use of our resources, if we are to eradicate malnutrition. This knowledge is so fundamental as to claim a place in our educational program. It behooves us now to study the best way to impart it and make it function so that we may decrease the number of delicate children to burden society, even while we are learning to apply the remedial methods which our present situation demands.

Drunken Motor Drivers

THE working of the new law in Denmark providing that the motorist once convicted of drunkenness while driving may have his license permanently withdrawn is reviewed in a current issue of *The Lancet*. Two degrees of alcohol poisoning are specified: "drunkenness" and "being under the influence of alcohol." The difficulty of police regulation of the two conditions between which there can be no hard and fast line required the formulation of certain standards and criteria, which were devised with the aid of the Danish Medico-Legal Council.

Recognizing that determination by clinical rather than laboratory tests will be necessary in practice, the following program was devised as a guide to the police surgeon:

(1) Observe the driver's appearance. Drowsiness, drooping eyelids, relaxed features, congestion of the face and conjunctivae, sweating, slobbering, disordered dress, and the like should be noticed.

(2) Observe his behavior. Noisiness, silly behavior, excitement, garrulity, restlessness, and other characteristics should be noticed.

(3) Is his sense of time and space natural? If it is, say "Yes," if not, repeat his statements.

(4) Test his memory. Note if he can remember a couple of addresses, and test his ability to describe something, i. e., how the motor accident happened, or the meaning of a drawing in an illustrated paper.

(5) Note his speech; is it thick, nasal, lisping, or stammering? Let him repeat difficult words or read aloud a short notice in the paper.

(6) Note his gait. Swaying and ataxia should be noticed, and Romberg's test should be carried out.

(7) Test the movements of his hands and also his handwriting, telling him to write his name, age, station in life, and address on a sheet of paper.

(8) Note if his pulse is regular and rapid, the condition of his pupils, and his response to painful stimuli.

(9) Note if he smells of alcohol.

(10) Are there signs of other diseases such as epilepsy or apoplexy.

Dr. J. Fog of the Danish Medico-Legal Council was charged with the task of putting this scheme into practice, and he has already examined fifty alleged cases of alcohol poisoning in motor drivers. The account he gives of these examinations shows what an elaborate process the Medico-Legal Council has devised. The average duration of a single examination is about forty-five minutes. The medical examiner loses no time lest the condition in which he finds the driver should have changed since his arrest. The interview between the driver and the medical examiner is, as a rule, conducted in the absence of a third person, and the examiner hastens to assure the driver that he, the examiner, is a neutral, unbiased party, anxious only to find out the truth. In the quiet atmosphere of

this tête-à-tête meeting, the driver, whose excitement is solely due to an accident and the events following it, soon settles down and carries out the various tests satisfactorily. On the other hand, the drunken driver who has been temporarily sobered by the shock of an accident and the prospect of losing his license for ever, may at first pull himself together to pass certain tests. But the maintenance of such artificial sobriety for the better part of an hour is an almost impossible task, and if he is really drunk, the driver sooner or later betrays himself.

With regard to the value of the tests devised by the Medico-Legal Council, Dr. Fog has found that the fourth test is very delicate; none of the drivers classified as drunk, and hardly any classified as suffering from slight alcohol poisoning, could pass this test satisfactorily. But the fifth test, which also included sums in arithmetic, was of less value. Two drivers, who were found to be sober, could not pass simple arithmetical tests. Handwriting tests proved of little value, for the handwriting of comparatively uneducated men may be bad, however sober they may be. As for pulse-rate, it was of practically no value. Indeed, the average pulse-rate of the drivers discharged as sober was a little higher than that of the drivers declared drunk or suffering from slight alcohol poisoning. Test nine was of value only when negative; merely to smell of alcohol is of little diagnostic value. All the three drivers not smelling of alcohol were discharged as sober.

Dr. Fog's classification of his fifty cases brings out some interesting points. All the drivers were men, and the age of forty-one of them was between twenty and thirty-nine. There were thirty-four professional chauffeurs, and sixteen amateur or private drivers. In as many as thirty-four cases an examination was required between eight p. m. and eight a. m., and in nineteen of these cases an examination was required between midnight and six a. m. Only nine of the fifty drivers were discharged as sober. Of the remainder, eleven were classified as drunk, and thirty as suffering from slight alcohol poisoning. It is evident from this interesting paper that, under conditions obtaining in Denmark, the medical examination of a motor driver accused of drunkenness is so elaborate and systematically carried out as a matter of routine that there is little chance of a miscarriage of justice.

Clothing and Health

(Continued from page 783)

scribed by Dr. Rosenau in "Preventive Medicine and Hygiene," 1913 edition, direct quotations being introduced at frequent intervals. Pflügge put various subjects in ordinary pneumatic cabinets which were tightly closed, and timed them to see how long it took to produce signs of distress from fouling the air. The cabinet was then opened, filled with fresh air and the subject put back, but this time with his head protruding so that the lungs were filled with fresh air, and again timed for production of signs of distress. Much to Pflügge's surprise after a somewhat longer time, the subject began to gasp for breath, and to complain of dizziness and a sense of oppression. Just as soon as the water vapors in the chamber had reached a certain density, and the air a certain degree of heat, the signs of skin suffocation began to appear. Children and those with weak hearts showed such symptoms earlier than did more robust adults. If either the humidity or the temperature were lowered, relief was felt almost immediately. If both factors remained the same, and a current of air were passed through the cabinet, the patients were relieved. By giving a constant change of air to the body, it was prevented from surrounding itself with a moist, warm jacket of foul air. It is therefore exceedingly important that the clothing hang loose, or be of fabrics of open texture at all times. Undue radiation of heat as in winter, may be prevented by the use of several layers of suitable fabrics.

When infants and young children die in great numbers during an excessively warm summer, the quality of the food is usually called in question. In most of the studies of such conditions, however, there were found a high percentage who died of trouble unconnected with the gastro-intestinal tract but directly with the central nervous system. Heat strokes are not uncommon among infants and young children who have not been exposed to the direct rays of sun at all, "but kept in unventilated rooms, dressed in warm clothing, and often in rubber diapers," as Helmholtz re-

ports. Lack of ventilation is directly connected with infant mortality in a way that leaves no doubt, as to the importance of the free circulation of air over the whole surface of the body.

It is a well known fact that clothing tends to prevent radiation of heat from the body. In 1922 Talbert found that a thermometer inserted between the clothing and the body of an adult

lower, but actually lose weight unless water is taken very copiously. Stellwagon says that much of the skin trouble, such as prickly heat, boils, and the like, to which children are subject, are due in large measure to their being "too much clad." The remedy is removal of a large part of the clothing. In summer at the Johns Hopkins Hospital even the most

delicate children never wear more than a shirt and dress, in addition to the diaper.

In "Science of Nutrition," Prof. Graham Lusk says, "the most important constituent of clothing is air." Rübner has shown that the fur of such animals as the rabbit, skunk, and the like are most efficient in prevention of heat radiation. The whole of the fur consists of about 97 per cent air and 2 to 3 per cent of hair. This would therefore mean that all clothing should be so planned that the fabric contain a maximum amount of air spaces. That does not mean that body heat is quickly radiated. Quite the contrary is true. Count Rumford in Bavaria in the eighteenth century collected some experimental data which tended to prove that openness of texture is very much more significant in preventing radiation and conduction of heat from the body than the kind of fiber used.

The truth of the conclusions have been corroborated by investigators in England, and amplified by work done by Haven in Boston and McGowan and Sale in Washington.

It is a pretty well established fact that comfortable, healthy workers produce the best results in every walk of life. The converse of this is even more true. Unpleasant painful emotions from whatever source produce toxic influences which in turn lower working capacity accordingly. Comfort, physiologically and psychologically, underlies efficiency in a way which can be measured in dollars and cents. The truth of these conclusions has been demonstrated in the Yerkes laboratory at Harvard. Dr. George Ven Ness Dearborn, has reasons for believing that a "comfortable" person is more energetic, has more initiative, produces better work than when he is uncomfortable or unhappy.



registered from $\frac{1}{2}$ to 1 degree higher than on the same part of the body when unclothed. The same is probably as true of infants.

Sutton found that the metabolism of infants is increased by heat just as is the case in any other simple chemical reaction. This raises the temperature and thus a vicious circle is established. Rabbits were exposed to incubator temperature for twelve hours. Upon examination it was found that not only was the number of bacteria in the intestines increased, but *B. coli* were found in the liver and spleen. V. Salle found that exposure of 85 degrees F. not only decreased the amount of gastric secretion but their acidity and digestive activity with a corresponding loss of antiseptic and antifermentative action.

Meyer has shown that children not only do not grow as rapidly in hot weather as when the temperature is

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"Freedom from discomfort underlies it all." The higher grade of work being attempted, the more injurious or harmful will be the results of physical discomfort. "Comfort, in general is indispensable to ideal behavior that is at all free."

So it would follow that every painful corn, bunion, too tight sleeve, or unventilated undergarment costs you money other than that you pay the doctor. Besides lowering your earning capacity, uncomfortable feelings produce definite physical disturbances of normal activities. Even the recall of an "unhappiness" was sufficient to raise the blood pressure of a young woman school teacher, as shown in the chart, from "Psychology of Clothing," G. V. N. Dearborn.

The pulse beat is shown in the space between the upper and lower lines. If the recall of the feelings, while wearing an unbecoming, inappropriate dress, will increase the blood pressure, how much more acute must have been the reaction when the garment was giving the lady trouble. Similar records have been made of the reflex actions caused by various sorts of discomforts such as small objects in the shoes of marching soldiers. The disagreeable results are always accompanied by an increased rate of metabolism indicating a waste of energy, and a corresponding rise in the respiratory quotient.

The fine artists have been telling us this right along. Richard Wagner refused to wear any under garment not made of silk. He said the irritation caused by wearing rough fabrics disturbed his mind so that he

could not produce high grade compositions. The artists had a feeling for the truth, but have left the subject open for investigation of the scientific base facts, for the study of which Dr. Dearborn makes an appeal. He says:—"If 10 per cent be a moderate estimate of the present inefficiency arising from maladapted clothing, it is obvious that adequate endowment for the scientific study of human raiment is a public need—"



need not as yet widely realized, perhaps because never before scientifically defined."

Food Allergy as a Cause of Illness

The more interesting of the abdominal symptoms of food allergy as set forth by W. W. Duke, (*Journal A. M. A.*, Sept. 15, 1928), is abdominal pain, which may be either steady or griping, local or general, mild or severe, acute or chronic. It is often related to the eating of food, and frequently appears a few minutes after the ingestion of some particular food. Other alimentary symptoms of interest are dyspepsia, nausea, vomiting, bloating, diarrhea and mucous colitis, which may be either acute or chronic. Other general symptoms are the ocular, nasal, pharyngeal, bronchial and cutaneous. The neurologic symptoms are possibly worthy of especial mention. Weakness and nervousness are common. Other symptoms of interest are headache, arthritis, hypertension and bladder disorder. Arthritis is worthy of especial mention. Joint pain and swelling is a very definite and interesting manifestation of allergy. There is some similarity between the joint symptoms of acute articular rheumatism and that of a reaction of allergy.

Migration and rapid change, on the other hand, are striking characteristics of the symptoms due to allergy. Allergy should be suspected in any patient suffering from one or more of the symptoms mentioned, especially if there is past or family history of hay-fever, asthma, chronic urticaria, eczema or other symptoms characteristic of the condition. It should also be suspected in any patient displaying symptoms that cannot be accounted for by other clinical findings. The history is especially important if symptoms bear a relationship to the ingestion of certain foods. Dermal and intradermal tests are very useful aids in diagnosis. In food cases, however, skin tests, especially cutaneous tests, often fail completely. A diagnosis should not be considered proved unless symptoms can be relieved by withdrawal of the suspected food from the diet and reproduced again during a well period by the eating of the suspected food. As to treatment, the problem can be approached from four different angles: by (1) avoidance of the offending food; (2) specific protein treatment; (3) nonspecific protein treatment, and (4) symptomatic treatment. Avoidance is the method of choice when a patient is sensitive to a relatively uncommon article of diet. Specific protein treatment is justified only in the case of sensitiveness to foods used so commonly in cooking, as eggs, milk or wheat. Nonspecific protein treatment is justified in case one is unable to find and remove the substance causing the reaction. Symptomatic treatment with epinephrin and atropin is very useful in emergencies and for temporary relief.

Health Board Cannot Close Schools

According to an opinion recently rendered in Wisconsin, it is held that the state board of health cannot condemn and close school buildings, regardless of their condition. If on examination such buildings are found to be a menace and school authorities refuse to take action, the state board is powerless to close the school.

More Industrial Accidents

Statistics published by the Department of Labor in Industry, Harrisburg, Pa., indicate for the last six months a total of 100,421 industrial accidents, the highest post-war casualty record reported. A slight decrease in fatalities was reported as affecting June.

Specify and Insist on *Armour's* When Prescribing Thyroids

Since the advent of Thyroids as a medicinal agent all sorts of "active principles" have been exploited. Best results have been gotten, however, from Armour's Thyroids in powder and tablets.

The therapeutic value of Thyroids appears to lie in several things present in the gland which are preserved in the substance when carefully prepared.

In the manufacture of Armour's Thyroids the raw material is selected carefully. Fresh normal glands only are used. The finished product is standardized and runs 0.2% Iodine and contains the other elements of Thyroids uninjured by heat.

We supply Thyroid powder and 1/10, 1/4, 1/2, 1 and 2 grain tablets.

Each grain of Armour's Thyroid powder is equivalent to 5 grains of fresh glandular substance and each tablet contains the named amount of powdered Thyroids.

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it stands alone

Health Administrators Dilemma

(Continued from page 792)

accepted by American public opinion nor adopted as a governmental policy in any American state.

Furthermore, the countries where this concept of state medicine has become most clearly defined, boldly asserted and ably defended, have been Germany and England and in both the connecting link that has gradually operated to create the concept of the curative functions of medicine being an integral part of the state's public health machinery has been principally the adoption of the method of sickness treatment for certain low-paid groups in the industrial world together with partial cash compensation for time lost from gainful employment that is generally known as health insurance.

British Plan Applied

Taking the recent official utterances of the British Ministry of Health as a basis, German sources being lacking, it seems fair to conclude that Great Britain's sanitary authorities today consider the partial regulation of the field of general medical practice as an integral function of government. Again speaking very broadly and possibly far from accurately I am of the opinion that the attitude of American sanitary authorities, including Canadians, has been slowly but steadily swinging in the past few years away from this concept of state medicine as desirable or expedient for American conditions.

A resume of the propaganda for and against health insurance with the corresponding arguments that have gone on in the United States during the past few years, would be both interesting in itself and would definitely contribute to your clearer conception of this intricate question but would lead too far afield for the purposes of this evening—hence, I must ask you to be content with accepting the above statement without the evidence that should be brought forward to corroborate it.

Fortunately for us, we do not need to go into extensive analysis of the voluminous literature of the subject to obtain an authoritative statement as to what the sanitary spokesman of Great Britain today includes in the field of state medicine.

In his admirable memorandum recently published entitled, "An Outline of the Practice of Preventive

Medicine," Sir George Newman, chief medical officer of the Ministry of Health defines the objects of preventive medicine as follows:

(1) To develop and fortify the physique of the individual and thus to increase the capacity and powers of resistance of the individual and the community.

(2) To prevent or remove the causes and conditions of disease or of its propagation.

(3) To postpone the event of death and thus prolong the span of life.

To this terse and comprehensive statement of the objects of preventive medicine there will probably be no exceptions taken in any quarters.

He sums up the "principal elements" in an ordered sequence of a national policy in Preventive Medicine, as follows:

(1) Eugenics and the principles of sound breeding.

(2) Maternity and the care, protection and encouragement of motherhood.

(3) Infant welfare and the reduction of infant mortality.

(4) The health and physique of the school child and the adolescent.

(5) Sanitation and an improved personal and domestic environment.

(6) Industrial hygiene, the health of the worker in the work shop.

(7) The prevention and treatment of infectious diseases.

(8) The prevention and treatment of non-infectious diseases.

(9) The education of the people in hygiene.

(10) Scientific inquiry and investigation; and the extension of the boundaries of knowledge.

British State Health Code

A few quotations will show clearly just how much the "cure" concept is incorporated into the scheme of public health administration in Great Britain today. He says: "Above all an adequate medical service must seek to fulfill and conjoin all the varied elements of a national health policy environmental and personal. There must be no divorce between the epidemiologist and the practitioner."

Much of the latter part of Sir George Newman's "Outline" is devoted to a discussion of how the general medical practitioner can be made to feel the advantage of a closer correlation and at least a partial fusion of his field of activity with that of the official health service of the Nation. To quote again:—"In him (the general practitioner) should be realized the correlation of preventive and cur-

ative medicine. He should concern himself with measures for the maintenance of health as well as the curing of disease—." A few pages beyond he speaks of the more comprehensive scope of the new Ministry of Health when compared with the old Medical Department of the Local Government Board, its predecessor, and states distinctly "Not only is there the natural expansion of Preventive Medicine with the growth of knowledge and application but new duties of medical treatment must also be undertaken."

And to clinch definitely the concept of the present British Health Department of State Medicine embracing the curative practice of medicine, under the topic of medical organization he states that in each local unit of health administration there must be responsible health officers "and associated with these advisers and practitioners experienced in the various aspects of practical medicine, investigation (meaning presumably scientific research rather than ordinary inspection investigation) sanitation, tuberculosis, venereal disease, school medical work, general and insurance practice and so forth" and finally "For first preventive and curative medicine have to be brought together, and practiced in harmony. The extension of the public health service . . . means that every medical practitioner is a workman for the public health, a missionary of an imperial cause. He may seize the occasion with gladness or he may protest but he cannot escape."

These quotations have been made to show that there is good authority from highest official sources for the statement that the terms state medicine and preventive medicine are in common circulation in Great Britain today in almost, though not exactly a synonymous sense and that they definitely include the field of curative medicine as part and parcel of the jurisdiction of state health work.

There is something that fires the imagination and excites the sympathy of us all in this idealized figure of the old family doctor as the foremost exemplar and apostle of the latest tenets of hygiene, personal or public.

The difference of opinion comes in as to whether these ideals are being approached or left farther and farther

The Management of an Infant's Diet

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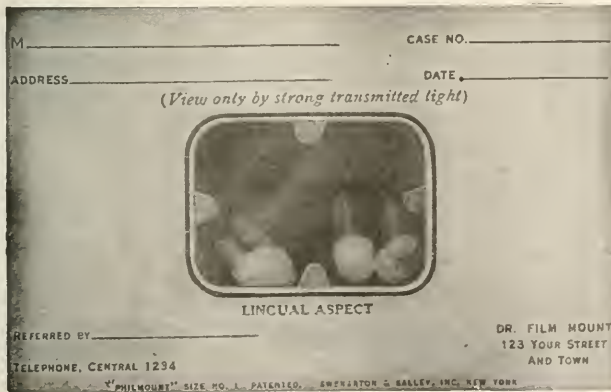
8 level tablespoonfuls
9 fluidounces
15 fluidounces

This mixture contains 56.61 grams of carbohydrates, thus supplying material that is utilized rapidly for heat and energy. The predominating carbohydrate is MALTOSÉ, which has the highest point of assimilation of any of the sugars, is immediately available as fuel and may be safely given in comparatively large amounts. The daily intake of protein from the employment of this formula is 15.54 grams, an amount calculated to be sufficient to replace depleted tissues and to provide for new growth. There is present in the mixture 4.32 grams of salts for replenishing inorganic elements.

The suggested modification furnishes nutrition in keeping with the character and amount of food elements best adapted to the particular demands of infants in an extreme state of emaciation and serves well as a starting point in attempting to meet the nutritive requirements of these undernourished babies.

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behind under the practical workings of the present British system.

Effectiveness of British Plan

Proponents and opponents alike of this system agree that the general practitioner is brought into a definite relationship with the health machinery of the nation principally by the practical workings of the Health Insurance Act. But while official and non-official advocates of the present British system point with pride to the operations of these recent laws as bringing more definitely into view the sanitary and hygienic millenium the opponents and critics view with alarm the practical workings of these same acts as being thoroughly ineffective from the standpoint of improving the public health, and definitely and directly pernicious in breaking down the independence of the medical profession and lowering the standards of competent medical practice.

And there we have it! Out of the welter of counter claims and cross accusations it is probably impossible to arrive at a fair, just, estimate of how the British experiment in state medicine is working out.

Arguments Against Insurance Act

Perhaps the most savage attack on the practical workings of the British Health Insurance Act is contained in a work by a British authority on legal medicine, Dr. William A. Brend, in his interesting volume "Health and the State." This work was published before the British Department of Health was created and is largely a piece of special pleading for the establishment of a National Department of Health, but it does not appear that there has been any material change in the relationship of the practitioner of medicine to the state brought about by the enactment of the National Ministry of Health Act. Dr. Brend's scathing arraignment of the shortcomings of the attempt to control curative medicine by government has been supplemented by many writers in the country; on the other hand the principles of health insurance have had very vigorous defense by able American sociologists, and to lesser degree by a few American physicians.

In order to give you some idea of the reverse of the picture portrayed by Sir George Newman, I will quote or summarize a few of Dr. Brend's most salient points:

(1) His first and fundamental criticism is that national insurance was lauded to the skies as a true public health measure and has failed to

produce results. He says "The National Insurance Act is the most ambitious piece of Public Health legislation ever carried through in this country. No previous measure has ever directly affected so large a number of persons, involved so great a cost, made such demands on administration, or been introduced with such lavish promises of benefit to follow; and no previous (public health) measure has ever failed so signally in its primary object."

(2) "The panel system has increased the element of commercialism in medical practice; it has done nothing to strengthen the interest of the doctor in the scientific side of his profession."

(3) That it was German in origin and had been in operation in that country for over twenty years prior to its introduction in England and had not produced public health results in that country.

(4) That it has not had any demonstrable effect in lowering maternal or infant mortality.

(5) That its cash benefits lead to excessive malingering but do not provide the deserving ill with the accessory special medical or surgical service, institutional or nursing care or convalescence facilities which are essential for earliest possible full restoration to health.

(6) That one of the most stressed points as to the public health value of health insurance, *i. e.*, that it would prove to be an indirect means to co-erce capital to improve insanitary surroundings which operated in shop or home against the physique of the working class, has never materialized in practice.

His many other objections he simply touches upon as not being essential to the public health aspect of the law. So much for solution number one, more government in private practice, as set forth by friend and foe. Personally I feel more and more convinced that this is not the wise road for us, even granting that perhaps it is the best for England with her infinitely heavier economic burdens and her astonishing percentage of population chronically below the economic boundary line of self-support.

Equip for Preventive Medicine?

Now let us consider very briefly the other alternative. We have called this the solution of bringing principles of preventive medicine definitely into the routine of private medical practice. It may well be called the practice of hygiene upon a "fee" rather than a "free" basis. Whether it ever

materializes or not is "up to" the American physician. I think I can see clearly everywhere evidences that the more progressive, more intelligent portion of our fellow citizens are every year, I almost said every day, becoming more and more ready for it.

But when they go to the physician with the idea of a "stitch in time" back of their minds—to unfold the trifling symptoms that are beginning to give them concern perhaps, or merely to have this bodily mechanism overhauled by their family biologic mechanic, what sort of a reception do they often get? You all know as well as I. There is no need to go into the painful details. Take just the one field of infant personal hygiene for instance. I have been astonished at the number of instances that have come to me of late, directly and indirectly, of the experiences of intelligent, sensible, well poised mothers who have taken literally the advice we health department folk have so liberally broadcasted in recent years—"Consult your family physician regularly for advice on baby's care while baby is well. Don't wait till he gets sick." They report a totally indifferent medical man who in many instances has even reprimanded them for seeking him, who seemed to have no ideas or advice on tap as to what they should do regarding diet, hours of rest, clothing, airing, bathing, or training of a well baby—or how to proceed to examine physically and appraise the state of development of a well baby despite the fact that the mother stood there eager for such simple but scientific advice and would consider such advice well worth paying good money for.

As Yet Untrained

The plain fact is, of course, that the physician has not been trained for this sort of work at all in the medical school or during his hospital training. He almost feels ashamed to take anybody's money (except a life insurance company's) unless he can in return show some point at which the human motor is skipping, or its carburetor fouled, or its ignition points "pitted" or its chassis sprung. In other words, his medical school has failed totally to acquaint him with the A B C's of either the preventive or social sides of medicine and when his clientele comes to him seeking guidance in these directions he is all at sea, and lets them drift away only too often into the hands of the cultists, sectarians, and charlatans.

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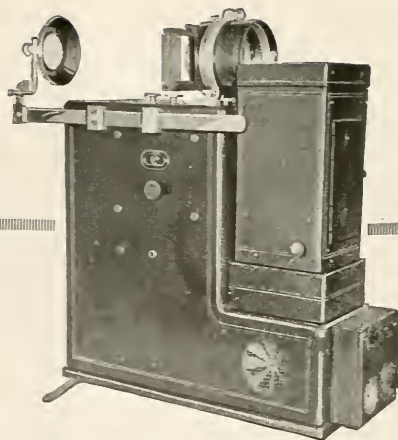
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MacKenzie Classifies Disease

There has recently been published a very remarkable little book which emphasizes this same idea from a little different angle called "The Future of Medicine", by one of the greatest living masters of clinical medicine, Sir James MacKenzie. I wish time permitted the quotation at length of some of the more striking passages in it, where this same idea is emphasized. He outlines his whole theme, however, in the first few opening paragraphs by giving a classification of disease that is so simple and obvious that it is astonishing that a similar classification never seems to have been made before.

He pictures any or all disease processes as falling into four distinct stages.

(1) *The Predisposing Stage.* The stage in which the individual is as yet free from the actual disease but liable to be attacked either from some inherent weakness or from some outside source.

(2) *The (true) Early Stage.* When the disease has entered the system but has not produced as yet any perceptible alteration of tissue and the signs the disease produces are mainly subjective or symptomatic and states that *this* is the curable stage.

(3) *The Advanced Stage.* Destruction or modification of tissue and its presence revealed by physical signs.

(4) *The Final Stage.* When the patient is dead and post mortem study is in order.

He goes on to point out that in reality clinical medicine hitherto has only concerned itself with the third and fourth states, and is now confronted with the problem of understanding the first and second stages—and concludes by stating that the chief end in medicine to which all endeavors should be bent is the prevention and (actual) cure of disease, but that up to now this objective has not been clearly recognized by medical men, for the greatest efforts of the profession have been diverted to the more urgent calls for the relief of suffering and improvement of already impaired health. And then he points out graphically how impossible it is by the present "instruments of precision, complexity of procedure, mul-

tiplication of specialists" route to ever get to the real objective of medicine because the bulk of patients in the predisposing or early stages of disease are never seen by those who are systematically engaged in disease investigation.

Then he goes one step further and shows that to achieve the aim of medicine, i. e., prevention and cure in the curable stage, it is necessary to recognize disease in its inception and

demands of the hour, of reshaping their practice to cover the field of preventive therapeutics, and anticipatory diagnosis as outlined by MacKenzie or else facing the more than possibility of our profession seeing written above it the words in letters of fire:

Mene, mene, Tekel upharsin.

This is the problem we are facing—the problem of the true relationships and the best lines of develop-

ment of the respective functions at present, and in the future, of the health department and private practitioners of medicine. The health administrator is truly facing a dilemma for he cannot hope to satisfy either the almost fanatical demands of the health enthusiasts or the reactionary, stand-pat, backward-looking ideas of the conservative wing of the medical profession.

This is the problem I wish to present to you for your most careful consideration, and that not merely more the fleeting period of this evening's program, but for the months and years that must pass until this problem is definitely, and let us hope, fairly and wisely solved—the problem of the health department and the physician and what they are going to do to each other or for each other

in the next generation, and I believe this subject deserves much more careful study and much less half-baked vehement, often almost vituperative outbursts from both camps than has been the case for the past few years. For like all other fundamental social problems that directly affect daily life, it is far from one-sided, and upon its proper and statesmanlike solution there may well depend much of deepest concern, not merely to these two groups, but to the whole future prosperity and welfare of our nation.

Illinois Organizes Physical Examination Campaign

Sixteen organizations are represented in conferences preliminary to organization of a physical examination campaign in Illinois in accordance with the National Health Council plans. Dr. Isaac Rawlings is chairman of the preliminary organization committee.

Health the Universal Aim

Health is the indispensable foundation for the satisfaction of life. Everything of domestic joy or occupational success has to be built on bodily wholesomeness and vitality.

Health is essential to the enjoyment all through life of sports and active bodily exercise. It is also necessary to continuous capacity for hard work; and it is only through active play and hard work that anybody can make sure of the durable satisfactions of life.

To promote health in the individual, the family, and the community should be the constant aim of every good citizen in the American democracy.—Charles W. Eliot.

that the only individual who has opportunity for acquiring this knowledge is the general practitioner.

What the Health Administrator's Dilemma Really Is

To sum up; what the American health administrator's dilemma really is:

It is *not* what doctors think it is at all: i. e., of the health administrators being put on the defensive to justify their present procedures.

On the contrary, it is rather the problem of holding back this strong rising tide of popular sentiment for the "free treatment" idea, and of trying at the same time to make the general public understand that like all alleged panaceas this state medicine concept still has far from demonstrated that it can produce all the results claimed for it; while simultaneously waking up their professional brethren in private practice to the absolute necessity of rising to the



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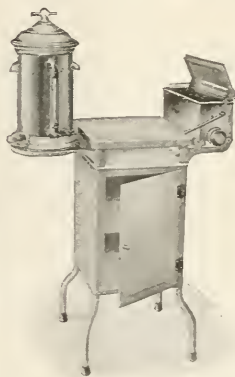
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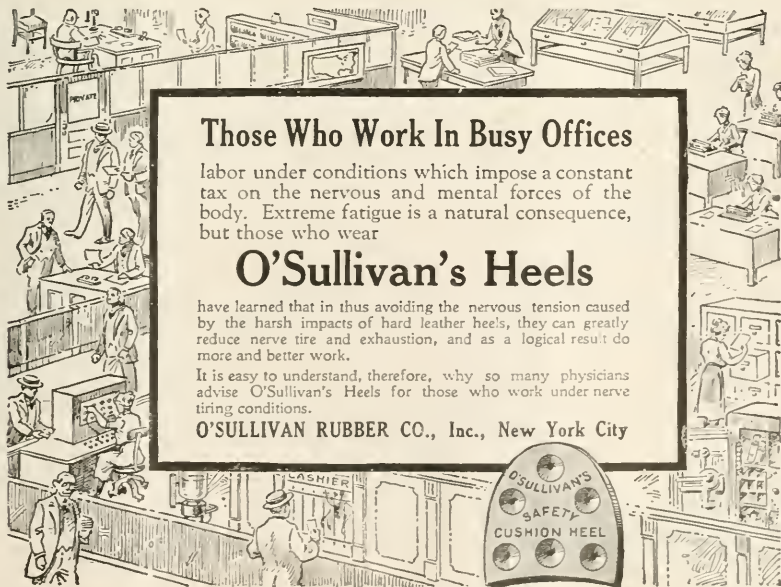
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Dr. E. H. Marsh Succeeds Dr. Lakeman

Dr. Matthias Nicoll, Jr., New York state commissioner of health, announced recently the appointment of Dr. Edward H. Marsh of Brooklyn as secretary of the New York State Department of Health to succeed Curtis E. Lakeman who left the Department to take up work in New York City.

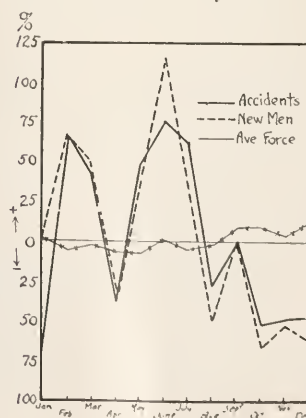
Dr. Marsh has been connected with the State Department of Health since 1917 at which time he was appointed sanitary supervisor. For a number of years he has served as Secretary of the Public Health Council and will continue to fill this position in connection with his new duties as secretary of the department. He will also have charge of the New York City branch office of the Department where he will continue to administer the post graduate courses of instruction for health officers and nurses which are conducted by the State Department of Health in cooperation with the University and Bellevue Hospital Medical College of New York University.

As Secretary of the State Department of Health he will exercise supervision over the educational and publication work of the department.

Labor Turnover and Accidents

From a study of the accident rate and turnover in four factories making different products, Kitson & Campbell found that during 1921 accidents occurred among all employees with a ratio of one to every four whereas they occurred among new employees with a ratio of one to each one hired.

The accompanying illustration shows the type of chart presented by the authors. It shows clearly the close relation between monthly deviations



from the average of new employees hired and the deviation from the average number of accidents among workers in a cutlery factory. The correspondence, though convincing, was not as close in curves presented for other factories.

The fluctuation in accidents followed to a slight degree the fluctuations in average working force but with a much closer correspondence the number of new employees.

It was estimated that if the number of new employees could be reduced to zero, the number of accidents would probably be reduced 75 per cent. It is also pointed out that in computing the cost of turnover from such items as spoiled work, damaged machinery, etc., a certain percentage of amounts paid in settlement for accidents should also be included.

An increased amount of time spent in instructing new workers might aid materially in reducing the number of industrial accidents. (*J. Indust. Hyg., July, 1923, v. 3, p. 92.*)

Bacteria in the Lungs

Stillman, on exposing mice to an atmosphere containing cultures of bacteria in the form of mist finds that the organisms readily penetrate into the lower respiratory tract.

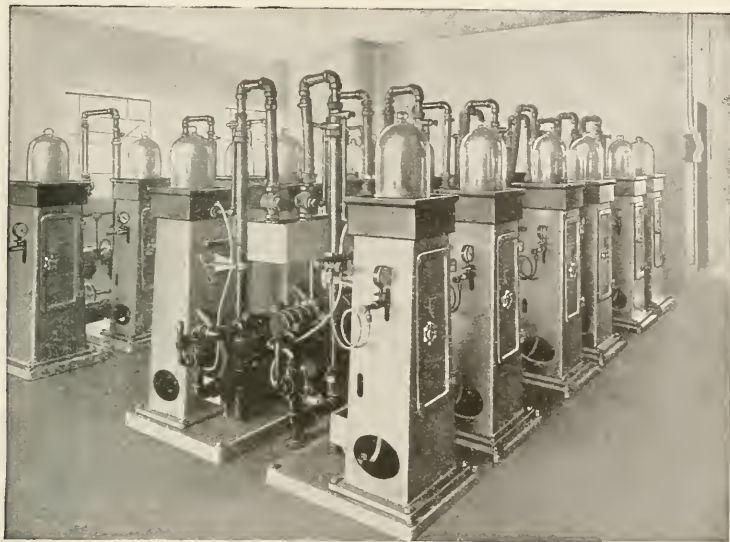
Pneumococci usually disappear in a few hours and give rise to no infection. Hemolytic streptococci, however, remain for a considerable length of time and usually give rise to a general septicaemia. Attempts to determine the conditions under which pneumococci may reach the lung and cause infection were not successful.

The bacteria must penetrate to the smaller bronchi at least for they can be grown from very small portions removed from the periphery of the lung. (*Jour. Exp. Med., Aug. 1923, xxviii, 2, p. 117.*)

Routes of Infection in Cholera

In an exhaustive study of the fate of cholera vibrios in guinea pigs and rabbits Sanarelli (*Ann. de l'Inst. Pasteur, Vol. 37, p. 364*) shows that vibrios injected into the peritoneum pass by way of the blood stream to the intestines in a few minutes, that the bactericidal influence of the gastric juice in these animals is so great as to preclude direct transfer from mouth to intestine, and that vibrios placed on the mucous membranes of the mouth or nose or trachea may pass through the mucous epithelium and reach the intestines by way of the blood and lymph channels, though such passage is slow and irregular.

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During recent years research effort has largely been directed toward increasing the concentration of antitoxin—getting the therapeutic dose in a smaller bulk and eliminating unnecessary solid material, especially proteins. An antitoxin thus refined has obvious advantages. The smaller quantity is

easier for the physician to inject and less painful to the patient. Even more important, however, is the elimination of unnecessary albuminous substances which in certain patients may cause protein toxemia.

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To Safeguard the Nose, Mouth and Throat Against Acute Infections

has been conclusively shown to be the main consideration in the prevention of the graver respiratory ills, such as pneumonia, bronchitis, sinus and middle ear disease, and so on, that make so many practitioners of medicine dread the advent of cold weather.

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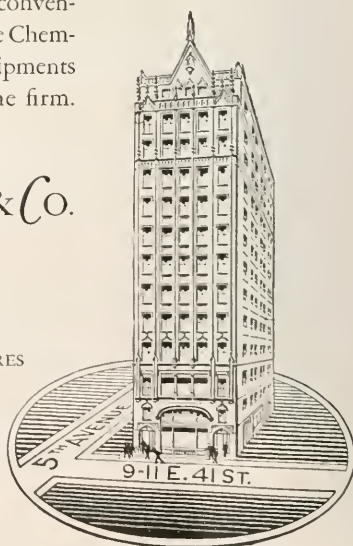
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The NATION'S HEALTH

A Monthly Magazine Devoted to Community Health with
Special Reference to Industrial and Institutional Problems

Volume V

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Number 12

The Bridgeport Department of Health Laboratory

*The Value of a Laboratory Is Directly Proportionate to Its Use by the
Community in the Control of Disease*

BY WILLIAM H. COON, M.D., HEALTH OFFICER, BRIDGEPORT, CONN.

WHEN, in 1918, the Bridgeport Department of Health was reorganized, enlarged and newly equipped to meet the needs of the community it serves, a fortunate combination of circumstances found the laboratory of the department housed in a new building designed for occupancy by the department of health and its various divisions.

Recognizing the important place the laboratory would occupy in the work of the department, considerable thought was given even from the time the architect's preliminary sketches were made to the proper layout of the laboratory and care taken to make adequate provision not only for its immediate needs but for the needs of the future.

The rooms to be used by the laboratory were planned with due regard for working convenience, the relation of the laboratory quarters to other divisions of the department, to natural lighting facilities and what not. When the rooms as laid out in the building plans were ready for occupancy they were fitted out with all necessary gas, water, and electrical fixtures, conveniently placed and with every accessory which would facilitate the laboratory's work.

When the Department of Health

moved into its new quarters it had then a laboratory conveniently placed on the third floor of the building, provided with all necessary equipment and utilities which would facilitate its work and with all necessary mechanical and scientific apparatus and materials.

Assignment of Space

The ten rooms, exclusive of the cold storage boxes, which are used for laboratory purposes, extend along either side of a central corridor, reached by two flights of stairs and by elevator service. The rooms in which light is a factor face north by east. The rooms on the other side of the building, and which are used in the mechanical work of the laboratory, face south by west. All rooms are exceedingly well lighted; the rooms on the north east frontage are separated from one another by partitions of glass and the partitions between the laboratory rooms and the corridor are of glass as well.

Altogether ten rooms are used for laboratory purposes. Three of these rooms have built-in sheet-steel hoods with exhaust duct extending upward through the ceiling, and one room has a large built-in hooded cabinet of glass for blood chemistry work and

other examinations which are attended with the production of annoying odors such as attend the analysis of garbage tankage and greases. One small room entered through the office of the director of the division is set aside for weighing on the analytical balance. The accompanying diagram shows the arrangement of the rooms used by the laboratory.

Refrigeration is provided by means of an automatic refrigerating machine placed in the basement of the building and controlled by an electrical thermostat in the main ice chest. The refrigerator is built into the laboratory and has compartments opening into the laboratory corridor and into the room used for the examination of milk samples. Altogether there are in the ice chest eight separate compartments each of approximately twenty-four cubic feet capacity, and one large box for general cold storage purposes with approximately 648 cubic feet capacity. The refrigerating machine used is rated at three and one-half tons capacity and with the thermostat set at 50 degrees F., provides a very efficient cooling apparatus, seldom needing attention other than the renewal of the ammonia tanks perhaps twice yearly, and the



View of general office showing closet for diphtheria cultures.

occasional filling of oil and grease cups.

Still another small room is set aside in which to house the animals used in the laboratory work. This room is provided with a concrete floor sloping from all sides towards the center that it may be easily flushed and kept clean and with an exhaust vent opening through the roof. In spite of these provisions and the most careful attention paid to the cleanliness of the room and animal cage, we have found it practically impossible to prevent the appearance of some odor from this source during the hot and moist days of summer months, although at other times no trouble is experienced. We will, however, be able to do away with what little annoyance appears by transferring the animals to summer quarters on the building roof. These quarters are now in process of construction.

Reference to the sketch giving the general arrangement of the rooms occupied by the laboratory will show five rooms on the northeasterly side of the building. These rooms were designed originally to receive the maximum amount of light compatible with strength of structure, and to secure proper lighting facilities for microscopic work. At the present time, however, all work with the microscope is carried on only with artificial light.

One, the corner room on this side is held in reserve for the future needs of the laboratory. The next room adjoining this and connected with a door is used for general chemical and analytical work. This room is provided with a built-in hood of glass and metal, with enclosed exhaust apparatus, and with a glass cabinet for

the storage of chemical supplies. This room receives light from windows which occupy the entire street frontage of the room and from the rooms on either side which are separated from it only by glass partitions which extend to the ceiling. Stout benches run along two sides of the room and these are provided with gas, water and electric fixtures conveniently placed.

The next room in order is occupied by the director of the laboratory for her personal office and as a quiet room for work with the microscope either by herself or her assistants. From this room opens another small room used in part as the laboratory library and



A view of general office and laboratory.

for work with the analytical balance which is kept there. The director's room opens into the rooms on either side and is separated from them by glass partitions.

The room on the right of the director's office is used as a general office, for office files and for the clerical work incidental to laboratory administration. Into one corner of this room is set a glass cabinet. This cabinet is provided with all facilities for the handling of diphtheria cultures and no cultures of diphtheria are handled elsewhere except in this room. After the cultures have been smeared and stained they are removed immediately to the autoclave in the general

utility room for sterilization.

On the other side of the corridor and facing the reserve room of the laboratory is a room used for general purposes. Here all glassware in use by the division is washed and stored. In the center of the room is a large soapstone sink provided with a hood and exhaust apparatus. Three sides of this sink have self-draining service shelves. This room is very well lighted by large windows occupying the greater part of the entire area of the two sides of the room facing south and west. Another sink placed by the wall is used for the supply and discharge of two large water stills. One side of the room is occupied by a cabinet for glass ware, two other sides are occupied by benches and tables for gas ovens and other apparatus, and by a large autoclave.

Next to the general utility room is a small room used for general storage purposes and for laboratory supplies of one kind and another.

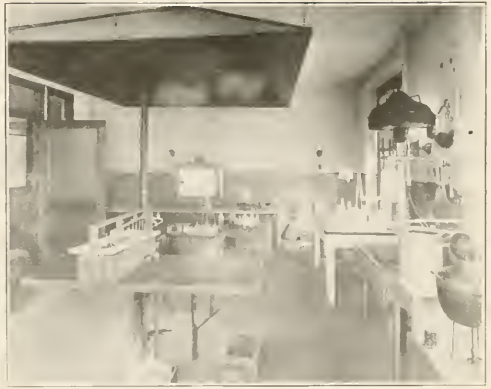
Next in order to the storage on this side and facing into the corridor are four large ice boxes and beside them a door leading into the main ice box. This box has nine feet head room, is approximately five feet wide and is used for the cold storage of biological supplies and other materials. Other ice boxes, four in number, open into one of two rooms which are used in general for the milk work of the department and for Wassermann tests. The wall space of the outer of these two rooms is used for the chart records of milk examinations. The records of all milk analyses are, of course, carefully kept through a system of card cataloguing, but for purposes of convenience and immediate



Ice boxes opening into corridor.



Director's office and view of room devoted to clinical analyses.



View showing the efficient arrangement of wash and general utility room.

comparison they are also kept on large charts so arranged as to cover all records for any one group for a period of six months. One chart, for instance, covers the record of all dealers selling Grade A raw milk in Bridgeport. In the outer left hand column of the chart the names of all dealers are arranged alphabetically; the next few vertical columns give against the name of the dealer his average for fats, total solids, bacteria and cleanliness for the preceding six months. Then follows his record posted as soon as examinations of his supply are made, for each of the other months of the year. Similar charts are used for Pasteurized milk dealers and plants and for ice cream dealers and manufacturers. Another chart kept in this room has proved of material value in checking up the records of herds in which tuberculin tests have been or are to be made. The regulations under which Grade A Raw milk is permitted sale in Bridgeport requires the tuberculin testing at least once each year of all herds producing this grade of milk. A good sized chart, small enough nevertheless to be conveniently used has been arranged, which enables the laboratory and the Inspector of Milk to find out at a glance when any individual owner's test is due, and when the test has been made to record in a small space the results of the test.

The last room on this side of the corridor is used as an animal room. The guinea pigs, rabbits and small animals used by the laboratory are bred in hutches at one of the hospitals and three sheep contribute their supply of blood to the laboratory's requirements.

The laboratory maintains twelve

"culture stations" at various points about the city, so situated as to be conveniently accessible to physicians. Ten of these stations are placed in drug stores. One station is maintained in a building chiefly occupied by physicians and there is another open twenty-four hours of the day, at the city emergency hospital. Each of these stations is provided with a supply of containers for specimens of urine, slides for blood smears and for the examination of gonococci, with Widal and pneumonia outfits, bottles for sputum specimens, and with culture outfits for diphtheria. Each station is provided also with a self-regulating, electrically controlled incubator. Physicians who place their diphtheria cultures in the incubator in the evening receive a report on these cultures the following morning. Collections are made from each station by ten o'clock at the latest each morning. At some of the stations in which adequate facilities are provided supplies of biological products are kept for the convenience of physicians.

Laboratory Equipment

Perhaps it is as well to state here that each year the Board of Health Commissioner has requested from the Board of Apportionment of the city, funds sufficient to supply the laboratory with all necessary new equipment, with equipment replacement, and with all necessary supplies. There has been no time in which this request has not been allowed in full. No need of the laboratory has been left unfilled. The laboratory has, in short, all the facilities and equipment necessary to carry on the work it is now doing, and there seems to be no

question that funds for any laboratory purpose the use of which would be of benefit to the community, would fail to be appropriated if requested.

For water and food analyses the laboratory is provided with a Kjeedahl still for the determination of free and albuminoid ammonia, an analytical balance, an immersion refractometer, a DuBoscq colorimeter, a small muffle furnace for ash determination, water baths, and the many incidental pieces of minor apparatus necessary for the proper examination of these materials.

For bacteriological work there are three compound microscopes, an electrically controlled incubator, autoclave, dry oven and Arnold Sterilizers. The equipment for milk examinations includes a Babcock centrifuge and dipping refractometer. There is a microtome for mounting specimens for pathological specimens and many other pieces of apparatus necessary to the work usually carried on in the laboratory of a health department.

This work or rather the work of the division of laboratories of the Bridgeport Health Department may for purposes of description be grouped into

(1) *Bacteriological examinations* for the physicians of the city, for the city clinics and for city hospitals. These include examinations of specimens for diphtheria diagnosis and release, tuberculosis, gonorrhea, syphilis, typhoid fever, paratyphoid, cerebrospinal meningitis, pneumonia, malaria, ring worm, Vincent's angina and dysentery.

(2) *Pathological examinations.*—Specimens of tissue are prepared for micro—(Continued on page 913)

Weapons and Tactics Used in the Battle With Diphtheria

Demonstration is Better Than Propaganda in Health Effort. Here is the Method of Waging a Health War in Your Own Home Town

BY FREDERICK W. SEARS, M.D., DISTRICT STATE HEALTH OFFICER, SYRACUSE, N. Y.

DIPHtheria is a scourge of mankind for which there is but little excuse. It may be said that the diphtheria morbidity rate of the average American community is the fault of the public health officials in charge, but this would doubtless be unfair even though every public health officer is well aware of the ways and means for securing large reductions in the diphtheria morbidity and mortality rates, for efficient diphtheria control depends to so large an extent on the cooperation of the family physician and the parents or guardians. The well known reduction in the case mortality of this disease that has taken place during recent years is a credit to curative medicine. The timely use of antitoxin has been an immeasurable blessing to the race; the problem now facing the health administrator is one of education.

Present accomplishments are of sufficient quality and quantity to prove beyond doubt the value of actively immunizing all susceptible individuals against an attack of diphtheria. Demonstrations have convinced the health officer that such a course of action is highly effective and much to be desired. In this land of the free, most of us are willing to be led and but few of us willing to be driven to a new pasture though the grass be ever so much more succulent and the shade more inviting.

This condition holds, in fact, for the entire field of public health. Mankind gets few blessings that it does not desire. Here, then, is the problem;

educate the fathers and mothers of the land to ask the family physician to immunize all their children early in life by means of toxin-antitoxin and secure the promise of the family physician to give and even urge such treatment. Even though the public official may in time thus work himself out of a job it seems certain that few of this day and generation will be

In a community where toxin-antitoxin treatment is unknown, what then is the first move? The physicians of course know about Schick testing and immunization but there may be many who are inclined to consider it as a display card of the immunologist rather than as a regular procedure for the practitioner. Again, some may be indifferent. Hence the first and most

fundamental step is to convince all physicians of the simplicity and effectiveness of testing and immunization. Talks to groups are of value but it is also true that personal and informal conversations whenever the health officer meets the practitioner are by no means ineffective. Tell the physicians of your plans at every opportunity and when they have received the benefits of a good amount of propaganda turn the attack on the next group.

After testing out the attitude of the physicians and converting the indif-

ferent, thorough newspaper publicity is most effective in reaching the school teachers and parents. One method of insuring intelligent journalistic handling of this phase of the work is to Schick the reporter who handles this phase of the work and immunize his children. With this experience and a simple explanation of the basic scientific facts involved he is much more apt to produce material that will sound convincing to the public.

Under present conditions the greatest opportunity for securing results is in the schools. While the general newspaper publicity is in progress the teachers can be given more informa-



Schick testing and antitoxin treatment have proved the greatest possible boon to preventive medicine. Where epidemics have raged, subsequent immunity is gained at the cost of human life, but Schick testing universally employed is a life-saving measure.

crowned with such success in their efforts. Too many weeds still abound in the "untilled fields of public health."

Little can be accomplished against the forces of indifference and opposition by a frontal attack. Crush both these wings with educational publicity and science can drive diphtheria to the marshy fringes of the universe.

Method of Attack

As already stated, the past reduction in the diphtheria mortality rate is a credit to medical science. Equal, if not greater, glory and honor will belong to those who reduce the morbidity.

tion through regular channels. The school children are then given printed forms setting forth very briefly the purpose, benefits, and effects of the Schick test and immunization. At the bottom of this sheet should be a consent blank for the signature of the parent or guardian.

Now the benefit of the earlier part of the program of attack will become apparent. "Johnny" comes home with the consent slip and announces that the doctor is coming to their school in a little while to see how many of them may catch diphtheria and that he will fix those that may so that they can't. The teacher has told them what a wonderful thing this will be, and "Johnny" wants father to sign the slip. To father this is a new thing; he either asks somebody else or calls up the family doctor. If the doctor says it is a good thing father signs the slip. If the physician has not been approached in relation to the forthcoming program he may be indifferent. Father senses this immediately and soon all the neighbors know that the doctor doesn't think much about it. Under such conditions failure is almost certain.

If, however, the physicians, the press, the school authorities and the parents are shown the value of Schick testing and toxin-antitoxin treatment, success crowns the difficult part of the offensive. A good majority of the children return with signed consent slips. The actual work then remains, but it is only an administrative and routine procedure then to test the children in the schools, read the tests, and to those showing positive reactions administer at weekly intervals, three doses of toxin-antitoxin mixture.

The Ideal Method

Six months to a year later re-Schick and get your reward. Immunize children entering school thereafter and diphtheria cases in the schools will be few. The oldtime epidemic that riddled the schools every winter will be no more.

Such an attack on the diphtheria problem as is outlined above is of value under the present conditions.

It is not to be considered ideal, but with such a scheme in operation there is a support for further effort to the end that all children between the ages six months and five years (without a Schick test) be immunized by the family doctor. Such protection is due the child when it reaches the most susceptible age and ventures out into society.

Before this ideal is attained, good can be accomplished by paying attention to the preschool children in

actions and received toxin-antitoxin treatment. No case of diphtheria has since occurred in this institution. The physician in charge of this orphanage happened to be the school physician and, being much impressed with the work done at the orphanage, it was not long before consent slips were given to the children attending one school.

From this point on the work progressed rapidly, the majority of children being tested and immunized during the winter months of 1922. Since then the work has included the children entering school and has extended to some of the preschool children. This latter part of the work is being particularly emphasized at present.

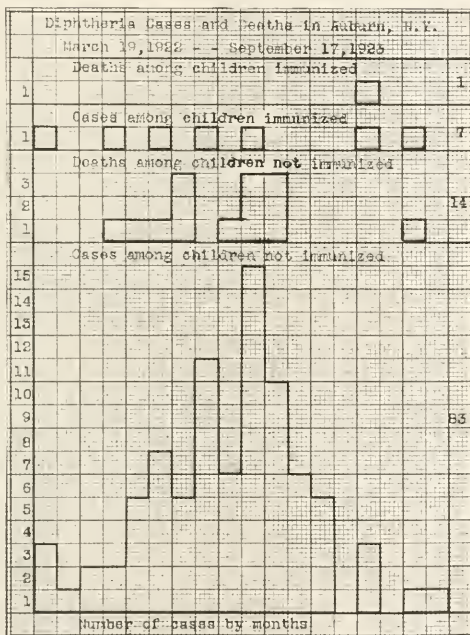
More than five thousand children, or approximately 72 per cent of the school enrollment have been given the Schick test. Sixty-three per cent of the tested children gave a positive reaction and 82 per cent of the more than three thousand positive children were given toxin-antitoxin.

The accompanying chart shows the number of cases of diphtheria and the number of deaths from this disease among the immunized and the non-immunized children from the close of the first demonstration in the spring of 1922 up to the beginning of the present school year. Among the nonimmunized group there were 83 cases and 14 deaths. Among the immunized group there were only 7 cases and one death. The record among this latter group, however, is probably too inclusive. All cases diagnosed as diphtheria have been included so that there may be no charge of juggling statistics. Most of them were later shown to be Vincent's angina and the one fatal case was probably a septicemia.

To summarize the figures for Auburn:

School population.....	7,105
Schicked	5,067
Positive reaction	3,083
Negative reaction.....	1,937
Not read.....	47
Immunized	2,546

It was found that in those sections of the city where diphtheria had formerly been most prevalent, the per-



centage of positive reactions was low. This, however, is only another indication of missed epidemics, the immunity has been secured at the cost of human life. It was also found that there was little variation among the English speaking races. Though the foreign race stocks have a low number of non-immune children, a larger percentage of them respond to toxin-antitoxin treatment than is found to be the case among the English-speaking (English, Scotch, Irish, and American) children. The following figures for three schools show the type of variations.

School but 9% foreign...85% positive
School 100% Polish....26% positive
School 92% Italian.....36% positive

The writer is inclined to believe from such findings as these and similar ones that the variations in immunity are not entirely due to the environmental factors affecting the different nationalities in the sections in which they congregate, but that there is also a purely racial factor involved.

Of 260 preschool children immunized in Auburn 90.3 per cent gave negative Schick reactions at the end of six months. This emphasized the point already brought out; namely, to obtain the maximum results children should be immunized early in life without bothering to give them the Schick test.

Work in Syracuse

In Syracuse 7,358 children have been tested. Of this number 3,949 were positive and 3,121 were negative, which means that 54 per cent were positive. The total school population of the city is 20,544. Eighty-one per cent of the positives have received one or more immunization treatments and 69 per cent have received all three.

As shown in the following table for more or less rural districts surrounding Syracuse, there is a relation between the per cent of foreign speaking peoples and the per cent of positive reactors.

Town—	Per cent Foreign	Per cent Positive
Solvay	50.1	48.0
Eastwood	40.0	63.0
East Syracuse.....	30.0	58.0
Baldwinsville.....	30.0	68.0
Weedsport	4.0	91.0
Homer	0.5	93.0
Fayetteville.....	0.5	93.0

The financial argument is always of value in dealing with the public officials that expend the public moneys. For example: It was shown that before Schick testing and immunization was introduced into the public schools of Auburn, during one term 14,205 days were lost by diphtheria cases, contacts and carriers. These lost

days cost the city \$6,871.16. During the first term of the next year, following diphtheria prevention work, but 415 days were lost at an expense of \$200.86. In all schools for the entire school year of 1921-1922 the loss was 22,438 days and \$10,860. During the next year this was reduced to 1,189 days and \$575.47. Such figures as these insure the allotment of more funds for the continued attack on the forces of disease.

Until such time as the family physician shall as a matter of routine immunize without Schicking all children in the families of his patients preliminary Schick testing must be continued. It is not recommended that the family physician use the Schick test. This can be done later to ascertain the results of immunization. Constant reading of tests and abundant experience is needed if conflicting results are to be avoided. It is difficult for the private practitioner to acquire this in sufficient quantity, hence the public official is the logical man to carry on this part of the work.

In both Auburn and Syracuse mothers are now bringing in pre-school children to clinics for Schick testing.

Rules to Observe

In starting a demonstration in schools it is well not to immunize the teachers at that time because of the possibility of getting a protein reaction in adults. One such occurrence may spoil the entire program.

Above all, keep very accurate records.

These are some of the tactics that experience has shown to be of value. With them have been presented some of the results accomplished with them. Time may show more and better weapons but the present need is for soldiers who will wage the war in their own home town.

Determination of Carbon Monoxide in Blood and Air

An apparatus for determining the amount of carbon monoxid in blood and air by the pyro tannic acid method, and compact enough to be carried in the pocket, has been described by Sayers, Yant, and Jones (*U. S. Bureau of Mines, Serial No. 2486, June 1923*). Colorimetric methods depending on the use of standards prepared from blood, proving unsatisfactory, standards have been developed and prepared from pigments.

In operation a sample of blood is taken, diluted, placed in a tube similar to those containing the standards,

the contents of a capsule of tannic and pyrogalllic acid added, and after allowing time for reaction, compared with the standards. The percentage of CO Hb in the blood is read directly.

For the determination of CO in the air, air sample bottles must be added to the outfit. Blood from a person who has not been exposed to CO is exposed to the air thus collected and the amount of CO Hb in the blood determined as before. By means of a chart the percentage of CO in the air can be calculated easily from the percentage blood saturation.

Bronchial Asthma Due to Mice

Emanations from all sorts of animals have been known to cause attacks of bronchial asthma, but a report by Dr. William Lintz in the *New York Medical Journal and Medical Record* is the first example of mice having been found as causing typical attacks from bronchial asthma. For the past seven years the patient had suffered attacks of asthma which occurred four or five times a month, principally at night, but occasionally in the day time, and chiefly from December till March. All tests failed to find the source of the trouble in food, weather, or the emanations from horse, cat, or dog, the attention of the number of mousetraps scattered about the premises led the physician to discover that the place was infested by rats and mice.

Suspicion that the mice were causing the trouble was further confirmed by the complete disappearance of the attacks when the patient sojourned in a home near by, known to be vermin proof, and their reappearance as soon as the patient returned to her own bedroom. To exclude any psychic influence tests, without the knowledge of the patient, made by exposing her to the emanations of a mouse when she was free from asthma, induced typical asthmatic attacks associated with intense dermatitis.

An energetic campaign against rats and mice in the home effected a complete cure. Dr. Lintz makes the report to support his thesis that every case of bronchial asthma is a separate piece of research work, and the physician can hope to effect a cure only through a knowledge of the patient's environment.

The Security Benefit Association will erect a \$200,000 hospital at Topeka, Kansas. Schmidt, Garden and Martin, Chicago, are the architects.

Eating for Health in the Tropics of Central America

In the Tropics As Elsewhere, the Palatability of the Food Depends Upon the Intelligence and Ingenuity of the Cook. A Balanced Ration Is Necessary Here As in the Temperate Zone

By WILLIAM COLBY RUCKER, M.S., M.D., CHIEF QUARANTINE OFFICER, THE PANAMA CANAL.

TO the average dweller of the temperate zone, the word tropics conveys the mental picture of waving palms, thatched or tile roofs, an easy existence surrounded by an army of deft, soft-footed servants, and a dietary in which exotic fruits and vegetables abound. It is vaguely supposed to be a hot region but no thought is given to the difficulties of securing ice for refrigeration. The unceasing warfare which must be carried on against kitchen vermin does not enter the picture. Rarely is it considered that to maintain health in the tropics, it is necessary to make a complete readjustment to an environment in which housing, clothing, habits, customs, servants, and foods are entirely alien to those of the homeland. In no particular is this more trying or important than in its relation to the feeding of the household.

The housewife who comes out from home soon finds that if she is going to set a good table she must do her own marketing, and here are encountered the difficulties of a different language and the trials of strange fruits and vegetables, new species of fish, and weird cuts of meat which to not appear to have been carved from any known animal. If she is slothful or lacking in initiative, she will fall back on the tin can, smoked meats, sausage, crackers and cheese, and a few cold storage products secured at infrequent intervals from passing ships or she will permit her cook to serve a native menu in which grease, red beans, and rice, garlic, and stews dominate with terrible monotony. The result is pretty apt to be gastric disaster.

If on the other hand, she is a real home-maker, the kind of woman who can throw around a one-night camp the atmosphere of an ancestral home, she will study the local market, she will learn how to prepare and serve whatsoever fresh foods she can secure, she will invent new dishes, or, better still, she will learn how to cook the native dishes and will then adapt them to the American digestion and appetite. She will not insist on serving exactly the same dietary as is the

most tropical dishes are more highly seasoned than at home. If one is kept on a monotonous or lop-sided diet, health maintenance is exceedingly difficult. At first there is always the temptation to indulge too heavily in the new fruits and other carbohydrates. Rashness in this direction should be avoided, as should also hideboundness about things which are different from those at home. An excessive meat diet is just as dangerous, since it is apt to set up a putrefac-

tive process in the intestinal tract and produce toxemia and chronic ill health. Perhaps the wide spread and very harmful tropical habit of frequent purges has as its foundation badly balanced rations.

The place to begin the study of how to set a tropical table is the market and there the housewife is pretty apt to have some unpleasant surprises in store for her. Regrettably it must be confessed that most tropical markets are

not conducive to a good appetite. To be sure, they may be marvels of cleanliness, sanitation, and order as in Colon and Panama; they may contain a wealth of fruits, flowers, and vegetables as in San Jose, Costa Rica, but quite the reverse is more apt to be the case. Perhaps the market is just an open plaza abounding in flies, dogs, and pigs, and the stalls merely a few palm leaves or an old piece of sacking. It may be just a street where unkempt slatterns squat smoking beside a few open baskets which catch all the dust from passing ox-carts and saddle horses. Sometimes they are dark, filthy little cells before which hang festoons of offal and gobbets of



If one wishes to keep well in the tropics, it is wise to market for one's self. It is surprising how many wholesome foods may be secured by carefully studying the local markets. At the boat market of Panama, R.P., fish, fruits, and vegetables may be had.

mode in the particular Badger Junction from whence she came. In other words, she will cut her menu according to her market. Other things being equal, the adoption of this policy will carry her family through what might well be a disagreeable or even dangerous experience without deprivation or harm.

The Zest for Food

It should be borne in mind that the newcomer from a temperate climate has a preliminary stimulation of the appetite and digestive functions. This soon passes leaving the taste for food and the powers of assimilation below par. Perhaps this is the reason that

meat. The romance of the tropics is oft-times greatest at a distance and with a nasal clothespin. But let not our marketer despair, safe food—not necessarily fancy food—may be secured at the price of research, vigilance and brains.

Green Foods Scarce

One surprising thing is the paucity of vegetables at the sea-level. In the higher hinterland they are far more plentiful and, as in Guatemala City, where it is said that fresh green peas may be had every day in the year, or in Caracas where bananas and grapes abound, the choice of most of the fruits and vegetables of the temperate and tropical zones may be had. These are exceptions however and in many places the arrival of a shipment of "States lettuce," i.e., head lettuce, creates a furor of excitement and housewives vie with one another in securing a supply which will last up to a safe limit of spoilage. Lack of industry and the absence of certain soil ingredients may have something to do with the scarcity of fresh vegetables in some tropical ports, certainly the carefully tended and well fertilized Chinese gardens produce well in Panama, but probably destructive insects are the real reason.

To compensate for this, there is almost always a splendid fish supply. Beautiful corbina, brilliant red-snapper, papagaya and parrot fish, silvery Spanish pompano and amber-jack are among the larger varieties; while mackerel, spots, grunts and many kinds of pan-fish abound. If fresh, they make an ideal tropical food, but it should not be forgotten that corbina produces an acute skin eruption in susceptible persons. Baked, boiled, broiled, or fried fish, either served plain or with a sauce, are on the menu of almost every tropical luncheon or dinner. Newcomers should secure competent advice before buy-

ing fish since several varieties are poisonous at certain seasons.

Shell fish are plentiful, shrimps, prawns, crabs and lobsters, oysters, clams, mussels, and scallops being easily secured in season. They must be absolutely fresh and go into the water "kicking" and they must not stand long before serving, since even with the best available refrigeration, they undergo decomposition rapidly in the hot, humid air of the tropics. In this connection it may be pointed out that food poisoning is not infrequent in warm countries. It is apt to occur in groups when a large number of people have been fed at a public place which is not equipped to serve so many people at one time.



A typical tropical garden. The trees in the foreground are papaya. They are always planted in pairs, since they will not bear unless male and female trees are close enough for cross fertilization. At the left sugar cane is growing. The small bushes at the right are yams, while pole beans are growing behind them.

Shell fish may be incriminated but any other putrescible food may be guilty. Nevertheless it is a safe rule to regard with suspicion all tropical shellfish unless one knows positively that they are freshly taken from the water.

Rice enters into many shell fish dishes. In Jamaica, for example rice and prawns are concocted into a delightful luncheon dish. To prepare boil shrimp or prawns and peel them. Put in a pan with a little olive oil, chopped green pepper, pimento, one tomato, one onion, water and rice. Season highly and add a bay leaf. Simmer slowly until the rice is cooked. Serve with half limes. To prepared in this way is not fluffy. To

make fluffy rice, as for curry and rice, clean the rice, wash in cold water, drop into boiling salted water, cook (about twenty minutes) until every grain stands for itself. Drain thorough a colander, pouring fresh boiling water through it to remove the mucilaginous content. Rice may be colored and delicately flavored with Spanish saffron or annato (*achote*) seeds.

In South America, *arroz abunda* is a favorite fish and shellfish dish. To prepare it, take a large iron pot and put in it some diced bacon, onions, thyme, and a bay leaf. Cook and stir until the onions are well browned. Add a good sized piece of firm, rather coarse fish with enough water to cover it. Boil and remove the fish and

strain out all the other solid material. Then add to the stock remaining, beginning with the one which takes the longest to cook, every sort of shell fish obtainable, crabs, lobsters, shrimp, prawns, clams, mussels, oysters, scallops and remove them when cooked. Add Spanish saffron to the remaining liquor, boil rice in it and drain it. To serve put a foundation of rice into each soup plate and heap on top of it a piece of the fish and enough shell fish to make a flattened cone. Then squeeze half a lemon over the mass and pour over it a little of the stock. Garnish with pimento. This dish is a meal in itself and will delight even the most jaded epicurean appetite.

Meat Not Savory

With the exception of cold storage importations, meats are not usually as good in the tropics as at home. If not tainted they are quite as healthful as in the United States but the animals have not been as skillfully fattened, slaughtered, and hung in the tropics. Of beef there is always a plenty but it is often rather "wild" tasting and as a rule butchered according to other standards than American. For a roast, for example, one gets what is called "loma"—a Spanish word meaning loin—a solid,

boneless, fat-free, fragment which resembles no cut ever seen north of the Rio Grande. Dry salted jerked beef called *tusajo* is a part of the Latin-American dietary which may add a pleasant variety to the menu. To prepare it, the meat is cut into one inch

uniformly of good quality and are safe.

In many tropical countries venison is plentiful and good, frequently being the cheapest meat on the market. There are also certain other game meats which are excellent. In Panama, for example, *conejo pintado*

cept geese, are plentiful, in fact chicken with rice is served with almost as appalling regularity as are fish and rice, or rice and red beans. Apparently they are athletic birds built for speed and endurance. In many places they are to be purchased from native women who walk about the streets with a number of fowls hung from each arm. Stepping aside for a moment, it may be noted that in the larger tropical towns there are so many different hucksters crying their wares from doorway to doorway that they are sometimes a positive nuisance. Each vociferously describes the merits of his goods. One with a basket on his head and a sheet of lottery tickets in the hand which he is not reserving for conversational purposes, is selling eggs. There are hand barrows loaded with golden oranges or shaggy cocoanuts and propelled by barefooted natives. Push-carts with pies, pastries, and candies bump along. Brown-eyed women gracefully balance pyramids of fruits on the glossy, black heads. Chinamen with expansive bamboo hats trot along with trays of green vegetables suspended from shoulder yokes. It is all very colorful, very exotic, but absolutely diabolical when added to the noise of shod horses, groaning ox-carts, and chattering parrakeets in a narrow, cobbled street which was laid a century before human foot



A Costa Rican banana plantation.

cubes and braised. It is then beaten with a flat stone and afterwards slowly simmered with a little olive oil, water, green peppers, tomato and onion, all well spiced. It is not as indigestible as it sounds and it has a high caloric value. Beef enters into the myriad of stews which are called by various names from *sancocho* to *guisado* but are none the less stews. Veal unless imported in cold storage, is more difficult to obtain. Many Americans find veal shanks a pleasant relief from the monotonous beef stew.

Meats Not Inspected

Goat meat is fairly plentiful in some places but is not popular except with the native poor. In Curacao dried, salted sides of goat are staple articles of everyday diet, in the same way that dried codfish is in Jamaica. Mutton is usually not plentiful. At the sea coast, it generally comes from Australia. It must be well trimmed and thoroughly scrubbed in salt water before serving. Fresh pork is generally plentiful. An acquaintance with the habits of the tropical pig is apt to discourage one's fondness for pork but the imported American variety is apt to be clean and wholesome. In this connection it is just as well to remember that in the tropics of the western hemisphere there are few countries which maintain an efficient veterinary service. Meats from the United States are almost

(translated "spotted hare") a sort of a gigantic guineapig, is a great delicacy tasting like superfine suckling pig. Also iguana, a sort of mammoth lizard, is held in high repute as possessing all of the combined prandial virtues of chicken, veal, and



Chicken merchants, San Jose, Costa Rica.

frogs' legs but nevertheless not particularly popular with Americans. Pecary or wild-hog is highly thought of and turtle is easily digested and has a delicate flavor but is not of high nutritive value.

As a rule poultry of all kinds, ex-

pressed Plymouth Rock.

In Cuba *arroz con pollo* (chicken and rice) has risen almost to the dignity of a national dish and well it may for when properly cooked it is as pleasing to the palate as it is to the eye.—(Continued on page 915)

Medical Inspection of Schools and Correction of Defects*

Health Promotion Used as a Means of Stimulating the Intellectual Performance of Millions of Children to Be Educated at Public Expense

BY C. V. AKIN, SURGEON, U. S. PUBLIC HEALTH SERVICE, HAGERSTOWN, MD.

IN DISCUSSING medical inspection of school children it is not the author's purpose to outline the theoretical ideal of performance. Quite enough has been written and said about what should be done for the welfare of children of school age and not nearly enough time has been spent in determining exactly what the average community can and will do for this fraction of the population.

In this phase of public health work, as in other branches of community endeavor, one continually meets with extremes. On one hand there is the progressive community with an intense consciousness of what ought to be done and plenty of money to do it with. At the other end of the scale one finds a collection of people who through ignorance, indifference, or financial inability, do nothing. It is hardly necessary to assert that the latter is by far the more commonly met with.

It should not be inferred from the directness of approach to the subject under discussion that public attention should be focused on the hygiene of school children as being of paramount importance; a separate and specialized section of child health work. Such is not the case. To the contrary, the necessity for such work is to a very great extent occasioned by ineffective or inadequate protection during antecedent periods of life. The task of the school hygienist assumes its present proportions because children are permitted to enter school in whatever physical state the sixth or seventh birthday finds them.

It would indeed be well for the public to recognize the basic fact that the mere act of becoming of school age is not accompanied by a mysterious physiological transition which serves to differentiate the school child

from one of more tender years. He has acquired a few permanent teeth perhaps, and has lost his flowing curls but otherwise is identically the same as when he ran at large, free from intellectual burdens, and exempt from sanitary curiosity. There is much to be criticized in a system which permits a child to be arbitrarily committed to school on reaching a certain milestone in life irrespective of his physical or mental status. Physical examination of thousands of school children, ranging in age from six to sixteen, proves beyond the possibility of a doubt that a significant proportion of this group is required to take this first big step in fitting itself for citizenship foredoomed to partial failure because of defects and deficiencies which interfere with normal physical and mental function.

For the purpose of establishing and identifying the field of school health work we may safely conclude that the defects embarrassing children of school age are those to be found among the pre-school group, with such modifications on the one hand as are the result of self-limitation or correction, or such exaggerations on the other as are the natural consequences of disease progress or neglect. The period of a child's life spent in school may well be utilized in overcoming the ill effects of earlier omissions but it must be considered primarily as a time of preparation for maturity. A proper school health program would not only insure children good bodily machinery but they would be taught how to run it in the most efficient manner possible.

For the imposing number of children in school who are waging an up-hill fight, medical inspection represents a boon of greatest value. If taken in connection with adequate follow-up supervision and the prompt provision of corrections for children of parents who cannot afford private professional attention, it stands as a community service of unusual merit.

School hygiene, no doubt, lacks the essential protective value of prenatal, infant, and pre-school work but the majority of children at the time of admission to school are still susceptible to the beneficial effects of corrective measures. As a means of stimulating the intellectual performance of millions of children to be educated at public expense, health promotion is a measure of striking economic importance. Reference to the humanitarian aspects of the proposition need occupy little of our time, as the public itself has never been particularly impressed with that argument.

Honesty compels us to admit that the average small community cannot afford to pay for a comprehensive full-time school inspection service. Experience seems to warrant the belief that if all of these communities suddenly found themselves in the market for school physicians and nurses it would be absolutely impossible to find trained personnel to fill the positions created. With a goodly proportion of the twenty-five million school children in the United States totally unprovided for, it is high time for the public to apply itself seriously to the solution of the apparently baffling problems of what to do and how to do it.

Preliminary to venturing a suggestion aimed at the solution of the problems of health of the school child in the small town of rural community, the author will attempt to outline his conception of the purpose or function and scope of the essential school health program. In so doing fundamentals rather than academic refinements will be considered so that it may appear that many important things have been omitted.

The purposes of school health work may be briefly summarized:

(1) To determine the physical and mental status of children of school age to the end that sick and defective or otherwise necessitous children may receive appropriate care and han-

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ding. The provision of such care to the needy unquestionably reacts with benefit to the remainder of a school population; teachers and pupils alike.

(2) To conserve the physical resources and promote the health of the entire school group as the most effective means; to: (a) Build up the resistance of the group to infectious processes; (b) Elevate the standard of school performance; and, (c) Provide the several members of the school population with the bodily stamina needed to successfully meet the demands of school work.

The fruition of such a program will be found in the more normal maturity of the children who graduate from our schools into the broader and more exacting fields of adult citizenship.

The principal difficulties encountered in beginning school health work are occasioned by "Lacks": Lack of community interest, lack of money, lack of trained personnel, and lack of knowledge on the part of most of us engaged in trying to meet the situation as to methods of procedure which will yield the greatest return for money expended. Of these, perhaps, the most significant is the first stated, "lack of community interest."

The Basis of Facts

Full knowledge represents the solution of this phase of the problem. It is inconceivable that the least intelligent of our American communities would deny to its children benefits recognized as necessary to their welfare. It is equally certain that even the most advanced community cannot be expected to proceed on a program involving the expenditure of large sums of money unless it is made to see the need and shown the form in which returns may be expected.

The molding of the public sentiment with regard to essentially constructive measures depends on leadership rather than propaganda. This extremely sententious conclusion, which may be altogether erroneous as so many individual generalizations usually are, brings us to the question: Who shall lead the public to the light? There is no trick in this question. If everyone interested in child health work felt as does the writer the futile discussion for so long indulged in as to the proper administrative relation between health and educational authorities in the conduct of school health work would have had no foundation. There is a big job to be undertaken and for its accomplishment will be required every resource of both

education and health boards. There can be no question of the rights of one as distinguished from the rights of the other. The only rights we need concern ourselves with are those of the children whose growth and development, physical and mental, depend on a complete and harmonious fusion of every community influence.

It is quite natural to conclude that there are parts of a school health program which can be most advantageously administered by the organization whose personnel is trained and experienced in the application of sanitary principles. Likewise, as regards the phases of this work which have to do with the teaching of health principles, the inculcation of habits of right living, and the formation of ideals and attitudes tending to promote personal and community health, the teaching force itself is the instrument of choice.

To admit these contentions is merely to classify types of activity incident to school health work and in no wise diminishes the certainty that if any school health program is to be conducted efficiently there must be mutual cooperation and joint administrative effort between the boards of health and education, manifesting itself actively and continuously through some acceptable system of centralized and unified supervision.

Having hinted so broadly it should hardly be necessary to make the direct statement that this coalition must begin at the very top, in the state government itself, and from this point be projected through the successively less complex units of the county, town, and rural community to the people whose protection and improvement is sought.

Thus we have developed a theory of leadership and have suggested an answer to the question "Who shall lead the people to the light?" It is not suggested that the state assume the burden of school medical inspection in any city or section where this service is being properly administered by existing organizations, nor for that matter in any community able to do for itself. The writer's conception of this proposition relates to the school groups which, unless help is provided from some extraneous source, must inevitably remain without proper health supervision.

The need is for a system of school health promotion applicable to all schools within the group just referred to, and for machinery capable of making its benefits reach the *needy* child in the most humble school in the

most inaccessible part of the district.

The things suggested cannot come to pass in a day and under no circumstances will they just happen. When the public finally awakens to the enormous price it must pay in human disability and economic loss for its neglect the public will in all probability do something about it—unless the public drops off to sleep again before the job is finished. The public, the great body of adult tax-payers, can be led but cannot be "educated" into doing the right thing: that is to say, within anything like an effective time limit.

A natural question arises in connection with the suggestion that the state do for communities, of which it is composed, what these communities are too poor to do for themselves. The practical answer to this query rests on the premise that through centralization and careful standardization of effort the multiplicity of machinery required for the conduct of numerous lesser programs could be eliminated with a great saving of money.

The population of Maryland, exclusive of Baltimore, is roughly three-quarters of a million. One-fifth, or approximately one hundred fifty thousand, of this group consists of children of school age. To reach all of these children for complete physical examination would require more time than any one school year provides and the cost for personnel and transportation would be stupendous. Again we find ourselves face to face with the same stone wall which usually obstructs community effort. The writer is not stubborn enough to attempt to break through, nor agile enough to hop over this wall, but there is a way around. The aim of a school medical inspection service is to secure help for needy children, and in its broader scope to prepare the entire group for future life. This purpose does not suggest that all school children in Maryland or any other state be given a complete physical examination. If there was or were no other conceivable methods of recognizing children who needed help than that of having them gone over with a fine-tooth comb by physicians we would be compelled to join the majority in saying that the job was too big to handle. Of course competent medical inspection is the method of choice and for large centers of population it will forever stand as the only acceptable procedure.

School medical inspection after all is merely a system of screening by which

relatively large bodies of children are classified into two lesser groups, one of which needs attention and another whose physical condition is, at the time of examination, satisfactory. There are two distinct levels even in the professional practice of school medical inspection; one seeks to evaluate the significance of defects observed at examination while the other contents itself with the simple recognition of departures from the physical normal. The first aims at specific correction of abnormalities, the second is for the greater part advisory.

Lacking the admirable fine screening process of the first type of inspection the majority of very needy children can be identified without primary recourse to a strictly medical inspection, not with the thought in view of dispensing with physical examination but for the specific purpose of cutting down the total number of children to be examined, at the same time striking directly at necessitous children in whatever school group or grade they might be found.

The suggestions in this connection do not apply to incoming first grade children. Until such time as physical fitness is made a necessary qualification to admission to school nothing will take the place of competent medical inspection for this age-group. The first, relatively coarse, screen through which children should be passed is that represented by the grade-teacher with whom they are thrown in daily contact. Sympathetic, more than ordinarily intelligent, and when interested, highly observant this teacher is usually quick to sense unfavorable changes in her charges. She has the opportunity that no medical inspector ever has for a series of comparative observations on the group under her supervision. It is not suggested that we make physicians of our school teachers. In using the teacher we are reversing the procedure a physician would follow. In this program of preliminary screening she would sift out the obviously normal specimens, all others automatically falling into the examination group.

With a minimum training the average teacher can test vision and hearing. Not for the purpose of diagnosing eye and ear pathologies but merely to set aside children who see and hear normally thereby diminishing the total amount of work to be done by the inspector or nurse. By observation alone the teacher can single out the genuinely healthy children in her room and it is highly probable that such observation coupled

with a careful estimation of the child's progress in school will spot the children for whom assistance is urgently required. If other signs are needed there are the attendance and age-grade records, both of which have certain value as indicators of sub-normality.

Will this suggestion raise a cry of anguish from the already overburdened teacher. I don't think for a moment that it will and certainly not if it is properly presented. As the physical status of a school group improves the labor of teaching that group is diminished. I have the testimony of teachers for this. It will not be necessary to sell this proposition on the selfish basis of a labor-saving device. In my experience with grade teachers I have yet to meet one devoid of interest in the welfare of her children.

The first step in the coarse screening process is concluded when the teacher has identified the apparently normal children in her group and has forwarded a list of all others, together with her reasons in each instance, to the County Superintendent of Education. The information so secured will pass through regular channels to the central agency designated to complete the investigation of selected cases.

In counties employing a full-time nurse for school inspection work, and even this minimum program cannot be made effective without one such, the second step in the screening process now goes forward. The nurse represents the screen intermediate between teacher and medical inspector. For the final selection of cases for examination, preparation of schools for the visit of medical inspector, in arranging itineraries with dates, and in following up cases designated by the examiner, the nurse will be invaluable.

By the interposition of these two selective procedures it is believed that the actual number of children requiring medical examination in a given school population may be reduced to approximately one-half. In the instance of Maryland the figures drop from one hundred and fifty to seventy-five thousand. We may conclude that there would be a proportionate reduction in professional personnel required and big items of time and money saved. A comparatively small number of school medical inspectors working under state supervision could handle this group.

As regards the character of physical examination indicated for children selected for special attention there

can be no considerable difference of opinion. If there is sufficient indication for any inspection whatsoever the child should be given the benefit of the most searching investigation. While it is advisable to secure a comprehensive physical picture of the child, final diagnosis is not an essential function of the school inspector. In any event the inspector is not the court of last appeals as the local practitioner to whom the family refers the child must have his say. The inspector should keep two points forever before him. Avoid alarming parents. This breeds antagonism. Be positive of the character and gravity of defects reported to parents. When the family physician or specialist fails to substantiate physical findings confidence is lost and corrections lag.

There is no virtue in a system of school medical inspection which does not lead to the improvement of the children concerned. It is impracticable to suggest the provision of clinical facilities for small communities and rural districts but there are forces which can be successfully utilized to combat this deficiency. Even under optimum circumstances clinical corrections cannot be secured without persistent follow-up. Given a staff of district nurses this all important work is rendered remarkably effective as personal contact with parents will win out when all else fails. We are still dealing with stern realities, however, and we can't create such machinery out of thin air.

The three most important existing factors for securing corrections are, First, the grade-teacher, second, the child himself, and, third, the physicians practicing in a community.

(1) *The Teacher*—In the belief that the teaching of health principles is an intrinsic objective of the standard system of education it is suggested that all teachers be thoroughly instructed in these principles and in the correct manner of presenting them. Aside from the inestimable benefit to the children thus schooled in a thorough appreciation of what health really means, there is no more direct way to carry the essentials of right living into the homes.

Given the right attitude toward health measures the classroom teacher represents the most powerful community influence for health promotion.

(2) *The Child*—Once the desirability of physical fitness enters the child's mind it will not be difficult to instill in him a desire for improvement. As far as personal disability is concerned—(Continued on page 886)

A Water-Borne Typhoid Outbreak of Unusual Character*

Where Protection of Property Against Fire Took Precedence Over the Protection of Human Life Against Disease and Death

BY CECIL K. BLANCHARD, ASSISTANT EPIDEMIOLOGIST, BUREAU OF LOCAL HEALTH ADMINISTRATION, NEW JERSEY STATE DEPARTMENT OF HEALTH, TRENTON, N. J.

THE outbreak of typhoid fever in Franklin, N. J., in November and December, 1922, due to the infection of a potable water supply after filtration and chlorination, again proves the danger of connecting a public water supply to any other system containing water unsafe for drinking purposes. The cause and results of this outbreak should indicate to any thoughtful person the folly of giving the protection of property against fire precedence over the protection of human life from disease and death.

Franklin has a population of four thousand and with some reason has claimed to be the ideal mining town of the country. Here is located one of the celebrated mines of the New Jersey Zinc Company, and great efforts have been made to protect the life and limb of the mine employees and to provide proper housing and recreational facilities, a safe water supply, unusual educational opportunities and public health service. The board of health employs a licensed health inspector, who is also the school nurse, and three visiting nurses are employed by the zinc company. The water filtration and chlorinating plant has skilled supervision and its operation is checked by laboratory tests.

The local health department first recognized the presence of an epidemic on November 18, 1922, and immediately requested the assistance of the state department. One hundred forty cases of illness had been estimated with tentative diagnoses of intestinal influenza, pneumonia, and typhoid fever, but no cases had been reported

to the board of health. The physicians were accordingly requested and agreed to submit lists of cases recently attended, with tentative diagnosis of each, thus providing within a few hours a record of all cases of severe illness in the vicinity. This procedure is recommended, as it does not commit the physician to a reported diagnosis at a time when he still may be in doubt, and yet notifies the health department of the cases of suspected typhoid or other disease under investi-

and by a number of the local physicians.

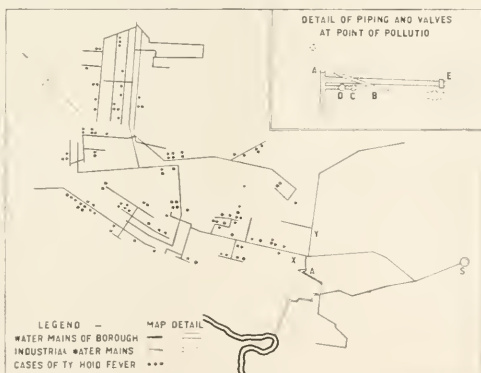
The case histories indicated that the public water supply was the only common vector of infection and that the cases followed the water mains from a point (X) near the center of the town northward. On the accompanying map of the water mains of the Borough and the distribution of cases along these mains is clearly shown. At the point (X) a four-inch pipe extended into the mine yard to a fire

hydrant (A). On another branch (Y) connected to the street main about fifteen or twenty feet south of this point, and supplying a number of houses and a large public school, no cases were reported. The presumptive evidence, therefore, pointed to this four-inch pipe as the probable point at which pollution entered the mains, since the flow past this branch is always northward. Investigation showed that this pipe in the mine yard of the zinc company was connected to a six-inch line (E) containing raw water, drawn from the Walkill River for fire protection purposes. A gate valve separating the two systems was found closed, locked, and covered with dust. A test with dye and one hun-

dred and twenty pounds pressure for two hours failed to indicate a leak at this point.

Extensive excavation in this vicinity (A) later revealed the four-inch pipe mentioned above to be connected to a three-inch line (B) containing raw river water for fire protection and industrial use. The two water supplies were separated in this case by a gate valve (C) on the treated water side of which was a check valve (D) designed to allow potable water to be used in the mine yard but to prevent

WATER-BORNE TYPHOID, FRANKLIN, N. J. DISTRIBUTION OF CASES ALONG WATER MAINS.



(A) Fire hydrant in mine yard. (B) Raw water industrial system. (C) Gate valve, found open. (D) Check valve, found leaking. (E) Gate valve, found closed and locked. (S) Standpipe. (X) Point where infection entered street main. (Y) Branch not affected by pollution.

gation. Cases were later reported in the usual way.

Water Supply Suspected

While the early symptoms were not typical, there were a few cases which were evidently typhoid. Accordingly, specimens of blood from twelve cases in the third or fourth week after onset were examined at the state laboratory and found to give the typhoid reaction. On November 23 clinical diagnosis of typhoid were made by a pathologist called by the zinc company

*Reprinted from Public Health News, Department of Health, State of New Jersey, February-March, 1923.

TABLE 1.—CASES AND DEATHS BY SEX

Sex			Per 1,000 Male Population		Per 1,000 Female Population		Percent Fatality
	Cases	Deaths	Cases	Deaths	Cases	Deaths	
Male	77	17	32.1	7.1	...	...	26
Female	37	1	...	...	22.0	0.6	2.7
Total ..	114	18	...	...	...	...	15.8

polluted water from entering the street mains. Investigation proved that this gate valve was open, leaving the check valve as the only means of separation between a safe and a dangerous water system. Should this check valve leak, and the pressure of the raw water exceed that on the other system, there was nothing to prevent the pollution of the drinking water for the town with the dangerous river water. A test to prove the valve was at once arranged.

The plan was to introduce a green dye, uranin, on the raw water side of the gate valve (C) set all the valves as they had been when discovered, open the fire hydrant (A) on the treated water system and observe whether or not the green dye passed the valve (D) and colored the town drinking water. Night came before the test was ready for trial, but in the glare of automobile headlights, preparations were completed and the group of health department investigators, company officials, and workmen gathered about the hydrant as the water was turned on. The minute of silence and suppressed excitement was relieved by the gush of a bright green stream from the hydrant. Each witness saw before him the proof of pollution of the town water supply and the presumptive cause of the typhoid outbreak. The theory developed from the epidemiological evidence was fully supported by the conditions revealed by this test. It was later shown by calculation that the pressure on the industrial water system at the point of connection with the filtered supply exceeded the greatest possible pressure afforded by the standpipe (S) so that the flow would always be from the raw to the treated supply.

The conditions just described suggest the wisdom of taking samples for testing a water supply at several points, preferably near the distant ends of the distributing system. All attempts to determine when and for what reason the gate valve (C) was opened and by whom have been unsuccessful, partly due to the critical condition of one of the persons who was best acquainted with the operation of the water system who has not yet recovered from typhoid.

The officials of the New Jersey Zinc Company rendered the greatest as-

sistance and co-operation in discovering the source of the outbreak and applying effectual measures for its control. The company maintained a central office and clearing house for reports, records and information, and assumed entire charge of the hospitalization and home nursing of patients, the care of families afflicted by the epidemic, and the many similar problems which arose daily.

It remained to show the infection of the Walkill River with living typhoid bacilli, to establish a direct route from the infected discharges of a typhoid case or carrier to the mouths of the victims of the epidemic. The river, within a mile and a half above the intake of the industrial supply received the sewage from a primary school of two hundred and eighty persons, from numerous privies located near its banks, and from toilets in the mine and millyard used by perhaps three hundred men. No cases of recent illness suggestive of typhoid were found among the users of the privies along the river bank. On October 12 a child recently recovered from a frank case of typhoid, returned to the school and used the toilet from that date on. On October 9, the father of this child, also convalescent from typhoid returned to work in the mill. It requires less than a minute for the discharge of the school toilets to reach the river and forty minutes for the mill toilet discharge to pass through a septic tank into the river. In either case the organisms might reach the intake within an hour or so from the time they were eliminated. Stool specimens taken from these two persons on December 14 failed to show the presence of typhoid bacilli but this, of course, indicates nothing of their condition in early October.

The dates of possible infection of the river were seven weeks after the onset in the case of the child and eight weeks in the case of the man, and at that stage of convalescence experience has shown that many patients still eliminate the typhoid organisms in enormous numbers. There is good reason to believe, therefore, though it is not susceptible of proof, that the river was infected by one or both of these persons about October 9th to 12th. These are the approximate dates when infection of the pub-

lic water supply would have caused the outbreak.

The distribution of cases by age groups was roughly proportional to the ages of the total population. The distribution of cases and especially of deaths, by sex, however, was the striking feature of the outbreak.

With about twice as many cases, there were seventeen times as many deaths among males as females. If the thirty-one cases and two deaths among boys of sixteen years and under be excluded, there remain forty-six cases with fifteen deaths among adult males, a fatality of nearly one-third.

Music and Health

The positive health of the singer, hard of muscle, abstemious of diet, regular of habit, and tuned to rhythmic response may be contrasted with the hectic life of the average folk who sit cramped at desks during the day, hang to straps in overcrowded cars on their way home, and whose harried existence usually requires the expansion of such small portions of the upper lungs that the effort of deep, full breathing makes them dizzily drunk with oxygen, according to the baritone, Cecil Fanning, in a recent issue of *The Etude*.

On the other hand, a popular notion that is exposed in the same article as untrue in principle and dangerous in practice, is the old belief in the virtues of the singing lesson to develop weak chests and rejuvenate delicate, pale-faced girls. Music teachers well know that picked people, with sound bodies and a penchant for hard work, are the proper candidates for voice culture. Pupils ostensibly ailing can be accepted only on certificate from their physicians, for it is useless, even hazardous, to require persons with weak lungs to do the hard work required in voice culture, and cases of incipient tuberculosis may be irretrievably harmed by it.

Fanning has a word to say, too, of the so-called temperament in singers which is often bad temper merely, or unsettled nerves, and these are ruled out by the regime that results in a good singer, resilient, adaptable, steady, in other words, healthy.

But music, if not musical study, is salutary for all. Its healing powers are utilized for the control of the insane. Shell-shocked patients during the war, oblivious to all other stimuli responded to the therapeutic effect of music. Muscular coordination is achieved through rhythmic motion, and mental health is promoted by means of free expression through music.

Food Legislation and Inspection In Massachusetts

The Historical and Statistical Summary of Food Law Enforcement in Massachusetts is of Particular Interest as Massachusetts Has Been a Pathfinder in This Field

BY HERMANN C. LYTHGOE, DIRECTOR OF FOOD AND DRUG DIVISION MASSACHUSETTS DEPARTMENT OF HEALTH,
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THE antiquity of state food legislation in this country is but little appreciated by the general public. Shortly after January, 1907, when the Interstate, or so-called United States Pure Food Law became effective, many of my friends said to me, "I suppose the new food law is making considerable work for you." Upon receipt of a negative reply a reason was asked, to which I would reply, "Because Massachusetts has had and has enforced a very good food law for twenty-five years."

There are in the Massachusetts statutes today, laws of greater antiquity than the general food and drug law of 1882. The law upon the branding of chocolate was passed in 1802, the first draft of the milk law was passed in 1859, a law relating to the sale of oleomargarin was passed in 1878, and in 1880 the vinegar law was passed. In 1882 came the general food law based upon the English law and which various other states and the United States used in part as a model for new legislation. The report of the state board of health for 1882 regarding this law states as follows:

A new interest has been awakened in the subject by the action of the National Board of Trade, through whose committee of experts a general bill was prepared "to prevent the adulteration of food and drugs." This bill substantially in the form recommended, has been enacted by the States of New York, Massachusetts and Michigan.

A general food law is not sufficiently explicit to cover all phases of necessary food legislation, and many other laws were passed. In 1887 a law was enacted regarding the labeling of compound lard, and in 1894 a slaughtering and meat inspection law

was passed, which since 1911 in its amended form is operating in a satisfactory manner. In 1896 a law was passed regarding the sanitation of bakeries which was revised and enlarged in 1920. In 1902 the state law regarding the labeling of baking powder was passed, and in 1906, the year of the passage of the United States Food and Drug Act, a general narcotic law, and a law on the labeling of proprietary medicines were enacted. In 1912 came the cold storage law, which has been used extensively as a model for similar legislation in other states.

Additions and Improvements

All of these laws since enactment have been amended usually for the better. In 1901 the general food law was strengthened by the addition of a section prohibiting the use of certain preservatives, unless their presence and percentages were clearly set forth on the label in letters of a certain size. This settled for the time a much vexed question; for, while the law prohibited the sale of food containing ingredients injurious to the health of the consumer, authorities by no means agree as to whether certain of the substances employed as preservatives exert an injurious influence on the system. The amendment waived the question and left it to the consumer to decide whether he cared to assume the risk. In 1916 certain commercial interests presented and succeeded in enacting a bill designed to secure uniformity between the state and Federal laws, although it differed from the United States law in many particulars. This law repealed the above mentioned preservative clause but provides that the department of public health shall adopt rules and regulations, consistent with cert in sections, standards, tolerances and definitions of purity or quality, conforming to the rules and regulations, standards, tolerances and definitions of purity or quality adopted or

that may hereafter be adopted for the enforcement of the act of congress approved June 30, 1906, and the amendments thereof, the said act being entitled, "An Act for preventing the manufacture, sale, or transportation of adulterated or misbranded or poisonous or deleterious foods, drugs, medicines and liquors, and for regulating traffic therein and for other purposes," or now or hereafter adopted by the United States department of agriculture under any other federal law.

The department has adopted such standards and regulations including those relating to preservatives and has successfully enforced them. The validity of these regulations is problematical until passed upon by the supreme court, but from the attitude of persons prosecuted for violating these regulations, it is improbable that the supreme court will be called upon to consider them in the near future.

For ten years prior to the passage of the general food law, the state board of health made numerous investigations regarding the quality of foods and drugs on the market. The act of 1882 provided that the state board of health lunacy and charity should appoint analysts and inspectors; should make all necessary investigations and inquiries in reference to the food and drug supply; should make rules and regulations concerning the collection and examination of samples; and should establish standards not specifically provided for by law. For carrying out the provisions of the act the sum of \$3,000 was appropriated. The law was approved on May 28, 1882, and went into effect three months later; whereupon the board appointed an analyst of foods and an analyst of drugs, who were directed to collect and examine samples, with such assistance as they might require, the appropriation being not large enough to permit the employment of regular inspectors.

The investigations made in the two fields showed that the market was in

1. Owing to changes in legislation, the Massachusetts state health work has been carried on by boards or departments existing under different names. The State Board of Health was organized in 1869. In 1879 it was replaced by the State Board of Health, Lunacy, and Charity; in 1886 it was replaced by the State Board of Health; in 1914 it was succeeded by the State Department of Health; and in 1921 by the Department of Public Health.

TABLE 1.—CHANGE IN CHARACTER OF SAMPLES COLLECTED AT DIFFERENT POINTS.

Character of Samples	1898			1905			1917		
	Total Samples	Adulterated Samples	Per Cent Adulterated	Total Samples	Adulterated Samples	Per Cent Adulterated	Total Samples	Adulterated Samples	Per Cent Adulterated
Cocoa and chocolate.....	36	17	47	17	4	23	7	3	..
Coffee.....	157	15	9	46	6	14	4	..	..
Condensed milk.....	48	18	37	23	2	9	3	..	..
Cream of tartar.....	392	19	5	116	6	5	1	..	..
Honey.....	94	14	15	82	1	1	5	1	..
Molasses.....	135	12	9	35	..	..	4	..	..
Spices.....	1,636	243	15	389	35	9	36	..	..
Sub-totals.....	2,497	338	14	656	54	8	59	4	7
Per cent of total samples.....	67	..	..	30	..	..	3	..	..
<i>Examined for Preservatives</i>									
Clams and oysters.....	..	..	..	77	18	24	..	..	..
Hamburg steak and sausages.....	..	..	..	149	81	54	60	18	..
Jams and jellies.....	..	..	..	52	21	40	13	..	..
Ketchup.....	..	..	..	21	12	57	4	..	..
Lime juice.....	..	..	..	17	17	100	..	..	..
Malt liquors.....	..	..	..	312	118	38	..	..	..
Soft drinks.....	10	5	50	127	26	20	17	1	6
Sub-totals.....	..	..	..	755	293	39	94	19	20
Per cent of total samples.....	..	..	..	35	..	..	6	..	..
<i>Examined for Decomposition</i>									
Dates.....	..	..	..	..	..	..	10	1	..
Eggs.....	..	..	..	..	..	..	307	63	..
Fish.....	..	..	..	..	..	..	16	5	..
Meats and meat products.....	..	..	..	..	..	..	27	4	..
Nuts.....	..	..	..	..	..	..	67	30	..
Shrimp.....	..	..	..	..	..	..	25	6	..
Vegetables.....	..	..	..	..	..	..	1	1	..
Sub-totals.....	..	..	..	..	..	..	453	110	..
Per cent of total samples.....	..	..	..	..	..	..	27	..	..

*Several.

†Less than one.

a most deplorable condition. In spite of the fact that the law relating to the inspection and sale of milk had been in existence for many years, the milk supply was found to be especially poor, adulteration being almost universally practiced in the cities and large towns. So great was this evil that in the following year, 1883, the legislature amended the act by increasing the appropriation to \$5,000, with the proviso that two-fifths of the whole should be expended in enforcing the milk law. Accordingly, two additional analysts were appointed, whose sole duty it was to look after this part of the work.

Owing to the conditions found by the several analysts to exist in their different fields, the legislature of 1884 made further amendments of the food and drug act, the most important of which increased the appropriation to \$10,000, whereof not less than \$6,000 should be devoted to the enforcement of the laws relating to milk and milk products. This enabled the board to appoint regular inspectors, who, by law, were clothed with all the authority given to local inspectors.

The character and extent of, and the geographic, climatic, and seasonal variations in food adulteration is little realized by those not actively engaged in the work relating to this subject. The character of the work of the department in the enforcement of these laws has inculcated a wholesome respect for the law in most people doing business in this state. There is, therefore, very little adulteration of food

and drugs in comparison with other localities where the inspection is not so thorough or so uniform. That the vendors of foods and drugs know that eventually their products will be examined by this department has a great influence toward improving the food and drug supply of the state. The history of the department shows that little by little the food supply has been improved, until at present the work, with but few exceptions, may be compared with the policing of a law-abiding community. It has been found necessary from time to time to change the character of samples collected, as the need of inspection decreased. This is best illustrated by the table, compiled from the reports of the department for 1898, 1905, and 1917.

In 1898, 67 per cent of the food samples consisted of condensed milk, coffee, cream of tartar, cocoa, chocolate, honey, molasses, and spices. In 1905 the character of these foods improved to such an extent that but 30 per cent of the samples collected were of this class, and in 1917 conditions had further improved so that only 3 per cent of the samples examined were of this class.

Of the total samples collected in 1898, less than 1 per cent had to do with foods commonly treated with preservatives; in 1905, 35 per cent of the samples were of this class; while in 1917 the number had fallen to 6 per cent.

Of late years more attention has been given to decomposition in foodstuffs, and during 1917, 27 per cent of the total food samples collected were

examined with this in view, while in 1898 and 1905 practically no work was done of this nature. The increase in examinations for decomposition is due principally to recent advances made in the chemistry of food decomposition.

The Spoilage of Food

The spoilage of food is unfortunate, to say the least, and in many instances is caused entirely by the greed of dealers in foodstuffs. Investigators of the division indicate the use to a certain extent of rotten meat in sausages which are so highly spiced that the nature of the meat is not noticeable to the consumer. This meat can be purchased much cheaper than fresh meat. The cause of the spoilage of the meat is found one step nearer the producer. The butchers who supply the sausage manufacturers with such meat are obliged to buy cattle from the farmers, not when they desire to purchase, but when the farmer desires to sell. If the price of beef is low, the butchers, hoping for a rise in price, will hold the carcasses until such time as the meat is unfit for sale at retail, and they will then sell to the sausage manufacturer. In one sausage factory a large quantity of rotten meat was confiscated, and a sample of sausage intended for sale was obtained. This sausage was so highly seasoned that the odor was perfectly normal, although the analysis showed that the decomposition had proceeded to an alarming extent.

Much of the decomposed food formerly found in cold storage was due to the false impression that rotten food may be placed in cold storage, and in some mysterious manner the process will make the articles satisfactory. Many instances are on record where dealers have held food too long at a high price against a falling market, and have placed the deteriorated articles in cold storage to be held until the next season. Salmon placed in storage on July 7, or thereabouts may be cited as an example of such practice. Delayed freight shipments are responsible in a measure for considerable of the decomposed food on the market. It becomes the duty of the department to confiscate such articles. A carload of decomposed smelts offered for storage had been one month in transit from the Pacific coast. About six years ago eleven carloads of miscellaneous fish were confiscated by reason of decomposition caused by congestion of freight en route from the Pacific coast. This fish was in such shape that it would have been impossible to dispose of any of—(Continued on page 920)

Report of Progress in Public Health Laboratories

So Much of Prevention Depends Upon Laboratory Findings that News From the Laboratory Assumes a High Import

By IRA V. HISCOCK, ASSISTANT PROFESSOR AND HOWARD J. SHAUGNESSY, INSTRUCTOR, DEPARTMENT OF PUBLIC HEALTH, YALE SCHOOL OF MEDICINE, NEW HAVEN, CONN.

DURING the past thirty years there has been a gradual development in the applications of laboratory methods to public health service,¹ which has resulted in more precise knowledge of the nature of disease and in practical measures of prevention. Health officials now recognize the laboratory as the foundation of all effective health work and as a means for coordinating their activities. In fact, around public health laboratories centers the practice of modern medicine.

Laboratory service in the large cities is well developed and specimens are annually examined at a rate which corresponds to about one to every twelve people. It is a direct and welcome service, usually free, which tends to make friends for the health development among physicians and the people. The lack of laboratory facilities in rural districts, however, has handicapped the practice of medicine, particularly in those areas far distant from state laboratories. Many capable young graduates stay in cities where better facilities exist, and rural communities suffer accordingly. The movement in several states, as Iowa, Michigan, and New York, to extend laboratory and hospital facilities on a state-wide basis is most gratifying; and it is believed that the public as well as the medical profession will soon be convinced of the importance of such measures.

The municipal health department laboratory movement has grown so rapidly that in the recent study by the American Public Health Association² it was found that all of the eighty-three cities surveyed in 1920

had some form of laboratory facilities. The usual types of service consist of bacteriological and chemical examinations of water and milk,—and in state laboratories frequently of sewage to determine the efficiency of treatment plants; examinations of food (including in some cases shellfish); occasionally of drugs, and of beverages for alcoholic content; examinations for diphtheria, tuberculosis,

who, by the way, are responsible for many important modifications in our standard procedures, to accept new methods. Inadequacy of funds and personnel, however, make conservatism imperative, although there is obvious danger through this practice of overlooking valuable aids in diagnosis.

There has been a tendency in many public health laboratories, often due to reasons just cited, to neglect chemical measures, reliance being placed entirely upon the microscope or the agar plate. A recent article by Gage and Earle³ among others, suggests the possibilities of chemical methods in examination of blood, urine, and other types of specimens, for diagnostic or treatment purposes. It is interesting to note, in this connection, a statement by Dr. Coon, health officer of Bridgeport, to the effect that the city laboratory has made arrangements to do work in blood chemistry. "We are never-



The mobile laboratory has many advantages in handling epidemic conditions, and water or milk problems in camps or remote districts. Louisiana, Wisconsin, and Indiana have used the traveling laboratory with uniformly good results.

theless, proceeding cautiously and slowly that we may determine just how far this work may profitably and advantageously be carried on in laboratory practice." The tremendous value of accurate acidity and alkaline measurements has also been generally realized by the large laboratories, and resulted in the adoption of hydrogen-ion concentration measurements. This technic, together with other advances in physical chemistry, has opened up new avenues of promise in nearly all branches of laboratory work.

Changes in technic and in the type of examinations performed necessarily come slowly in city laboratories and few innovations are adopted. Routine laboratories are urged from time to time by their neighbors in research,

the mobile laboratory has many advantages in handling epidemic conditions, and water or milk problems in camps or remote districts. Louisiana, Wisconsin, and Indiana have used the traveling laboratory with uniformly good results.

In many routine laboratories the personnel consists of a bacteriologist who can Gram stain satisfactorily or detect diphtheria organisms in culture, or a water chemist whose chief activ-

ity is confined to the differentiation of the various types of nitrogen as free ammonia, albuminoid ammonia, nitrites and nitrates and to the calculation of oxygen consumed. Of course, there is need for that type of service, and the prevailing rates of remuneration do not usually attract the skilled biochemist, or stimulate a large group of laboratory workers to secure this higher training. New lines of service have developed, and as research has increased in quantity as well as quality, there has arisen a demand for more highly skilled personnel. Consequently, it is hoped that the salaries and opportunities of trained laboratory workers will become more favorable in the near future.

In the past and to some extent in the present, library facilities have often been lacking and the books have been limited to a pitiful half dozen, bolstered up by a copy of standard methods. Technical journals—the inspiration for new methods—have been confined to personal copies. New methods have been learned at the infrequent conventions or through the kind offices of some old classmate. Several laboratories are now equipped with the leading public health and medical journals and also give their technicians either the benefit of research or visits to conventions and other laboratories where new methods are being developed.

Research Work Increasing

It is encouraging to find that research work is increasing in both city and state laboratories, and that nearly one-third of the municipal laboratories studied in the survey previously mentioned were pursuing definite lines of research in 1920. A laboratory if adequately staffed and equipped, is in a position to render important service to its own community as well as to the country as a whole, through its research studies of practical problems.

As illustrations of the prominent part which public health laboratories may play in research fields, through the kindness of several laboratory directors and health officers to whom we gratefully express our thanks, it is possible to refer in this summarization to specific work which is now in prog-



New methods are learned chiefly at infrequent conventions or through the kind offices of some old classmate. This picture shows visiting students and nurses in the blood room of the laboratory at Marquette University at close of recent hospital convention in Milwaukee.

ress or has recently been completed.

(1) *Diphtheria*.—The New York City laboratories' under the direction of Dr. Park, are now working on the monthly injection of guinea pigs with stored toxin-antitoxin to discover when the antigenic power of the vaccine is lost and how the toxicity compares with the antigenic power. Every public health worker is familiar with the important contributions of the New York laboratories in standardizing the technic for the Schick test and toxin-antitoxin immunizations, and in demonstrating the value of such immunizations in the saving of human lives, especially in childhood. The Milwaukee laboratories have also been engaged during the past year in observations on the Schick test and toxin-antitoxin immunization, from the standpoint of practical application of these measures in the city. In the Massachusetts state laboratory, an investigation has been made of the mechanism of the pseudo-reaction in the Schick test. In this work, reported by Dr. Nye at the April meetings of the American Association of Immunologists, various substances present in diphtheria toxin have been isolated and their effect studied on individuals who have given pseudo or combined Schick reactions. Studies have also been made of diphtheria immunization in horses; and on the relations between toxin and antitoxin in diphtheria toxin-antitoxin mixture. Obviously, only thoroughly equipped, well manned laboratories can undertake problems of this character.

Another phase of diphtheria control in which the laboratory has participated is the determination of virulence of diphtheria bacilli. In 1915 Zingher and Soletsky⁷ introduced the intracutaneous method of making diphtheria virulence tests, which differs from the subcutaneous method in that the cultures, after isolation are grown on solid medium, suspended in salt

solution and injected into the skin of a guinea pig. Havens and Powell,⁸ and Force and Beattie⁹ later described the whole-culture virulence test which tended to show that this method would be advantageous in dealing with cultures from convalescents, contact carriers, and carriers at large, for

tests can be made with the original diagnostic culture, and the necessity of isolating pure cultures is eliminated, and the whole culture instead of one or two random plate colonies is represented. Bull and McKee⁶ gave further observations with the method on the basis of cultures obtained in a survey for carriers among the school children of Baltimore, 3,995 cultures being considered.

Improvement in Technic

Considerable work has also been done by Mr. Bransfield at the Bureau of Laboratories of the Connecticut State Department of Health on comparison of the use of the whole culture with the pure culture in testing diphtheria organisms for virulence by the intracutaneous method. The whole culture has been found by him practically as reliable as the pure culture for virulence tests by this method and has the advantage of simplifying the test so that it may be more generally used in the administrative control of diphtheria. The Bridgeport laboratory also reports success in reducing the time required by earlier technic to determine the virulence of diphtheria cultures. According to information furnished by Dr. Stokes of Baltimore, the laboratory of that city is investigating the percentage of diphtheria virulence tests among various types of carriers, and also studying selective media for the detection of the diphtheria bacillus.

(2) *Scarlet Fever*.—Studies in the etiology or treatment of scarlet fever have been carried on in several laboratories, notably Detroit, Grand Rapids, Milwaukee, Bridgeport, and New York.

(3) *Tuberculosis*.—The complement fixation test has been further studied in Boston; method of sterilization of sputum before examination, in Detroit;¹⁰ while in New York certain suggestions as to removing the "wax" from tubercle bacilli and so making a

better vaccine have been tested. Comparisons between different methods of staining for the tubercle bacillus have been made in Baltimore.

(4) *Syphilis*.—Modifications of the Wassermann reaction or new complement fixation tests have been described particularly by Kolmer¹¹ and by Kahn,¹² and several laboratories have pursued studies along one of these or independent lines of research. Studies made in the New Haven Hospital by Drs. Fox and Sanderson¹³ are especially interesting for they considered both clinical and laboratory findings. Problems in connection with the Kahn precipitation test for syphilis as compared with the Wassermann test have been studied in Boston, where the gonorrhea complement fixation test has also been given consideration. In Chicago, studies have been made of the effect on the Wassermann reaction of traces of alcohol, phenol and water which may be introduced from syringes and needles used in collection of blood. Among the subjects under investigation in Baltimore we also find (a) comparison of routine Wassermann with ice box complement fixation test and Sachs-Georgi method, and (b) a simple apparatus for the collection of serum for examination for the treponema pallidum. The Massachusetts state laboratory has studied the Kahn and other precipitation tests in comparisons with the Wassermann test; the antibody content of serum of syphilitics during treatment; the turbidity of antigens; and the occurrence of the Wassermann reactions in pregnant women of various social groups.

(5) *Milk*.—Research studies of milk in Boston include comparative counts, using various media such as milk powder, beef extract, beef infusion, and various methods such as the Frost plate, Breed, and Slack methods. Other milk studies include: (a) staining of Frost Little plates and comparison of various milk and water media, in Detroit; (b) investigation of certified milk farms for streptococcus carriers in Chicago; (c) the comparison of standard media with other media suggested for milk work in Baltimore, in addition to studies on the sterilization of milk bottles; and (d) studies on pasteurization and tuberculosis in Milwaukee; and (e) studies of bacterial counts on milk

bottle caps with comparison of effects of different methods of capping in New Haven.

(6) *Water Supply and Swimming Pools*.—The laboratory in Chicago engaged in studies of the virulence of *B. welchii* in the city water last year, while in Milwaukee, an investigation was made of taste producing bodies in the water supply, as well as studies of water-borne infections and tests of the efficiency of domestic filters with or without ozone. The Baltimore laboratories studied the correlation of the neutral red reaction in fermentation tubes with the various types of intestinal organisms in water, and the relation of residual chlorin in the city water supply to the typhoid rate. In addition to extensive work on filtra-



In testing the protective value of pneumonia serum, dilutions of culture of living, virulent pneumonia germs are prepared for injection into white mice. Bacteriologist shown making such solutions.

tion methods at the Lawrence Experiment Stations, the Massachusetts laboratory has carried on a large amount of work to determine the usefulness of hydrogen-ion determinations, in various forms of water purification, especially where coagulants are used. The sanitary and laboratory conditions of swimming pools were investigated in Boston; Dr. Pryer of Detroit reports a partially completed study of d'Herelle bacteriophage in the treatment of swimming pool water; while Chicago also carried on experiments on swimming pool disinfection. Milwaukee made a sanitary survey of bathing beaches.

(7) *Miscellaneous*.—In addition to the above mentioned investigations, many other types of problems have been studied. These include work on food poisoning, especially the association of *B. botulinus* with food poisoning, as in Detroit and Milwaukee; laboratory diagnosis of typhoid fever

in Richmond; (a) drinking glasses at soda fountains, (b) spread of mouth-borne infection by the telephone mouth-piece, and (c) methods of detecting traces of carbon monoxid in air in Chicago; (a) a new colony counter, (b) a generating apparatus for the disinfection of rooms or other closed spaces with hydrocyanic acid gas, (c) methods for growing the Gonococcus, with observations on the length of time, the organism lives on different media, (d) benzol poisoning, and (e) a report on the hazards from the use of manufactured gas in Baltimore; (a) Vincent's angina and (b) pneumonia in Milwaukee; and (a) the further study of the filtrable viruses obtained from persons suspected of influenza and from persons having other respiratory diseases, and (b) more theoretical work on agglutinins and precipitins, studying methods of absorption and of group affinities, in New York. Finally, should be mentioned the research studies in the Massachusetts laboratory by Fellows of the International Health Board on (a) means of increasing the yield of serum for therapeutic and diagnostic purposes; (b) purification of vaccine virus by means of ether extraction; as well as investigations concerning the production of trade waste and sewage purification; and coal analyses.

Dr. Wadsworth, director of the New York state laboratories, writes that "In order to insure complete and permanent records of all research undertaken in the laboratory, outlines of proposed work together with reviews of the literature are submitted for criticism and approval. Reports summarizing the work done are made every month. This material constitutes the scientific file which is maintained by the library staff for reference. The educational value of this procedure to the scientific staff of the laboratory has been apparent from the beginning. It has been an important factor in the development and training of the research workers.

"I should like to emphasize that all the research work done here is undertaken with a view to the distinct practical bearing which the results will eventually have on public health laboratory work as a whole."

At the New York state laboratory some research is always in process, having—(Continued on page 922)

Northwestern University to Have a New Teaching Hospital

NORTHWESTERN University has been a large contributor to the alleviation of human suffering resulting from disease. The medical dispensary last year gave assistance to some forty thousand patients, while thousands of visits by the school's social service department were made to homes of the sick. The present buildings of Northwestern University Medical School at Twenty-fifth and Dearborn Streets, Chicago, have served for thirty years and were long since outgrown. The buildings are inadequate. The school's museum of pathology, one of the finest in the United States, cannot be properly displayed or fully utilized. Laboratories have to serve as lecture rooms, and, in spite of the

\$5,750,000 have been contributed toward the building fund, to which a gift of \$600,000 from the General Education Board is contingent upon Northwestern obtaining \$1,400,000 for endowment alone. The following facts regarding the project, and regarding health work in general, are given out by the University in its recent pamphlet called, "The Last Battlegrounds of Disease":

Rising to a height of sixteen stories,

its dispensary service, and at all times to assist physicians in keeping in close contact with advances in research and practice.

To erect such a plant, with a teaching hospital, a clinic, a dental school, and a medical school, will cost several millions of dollars. The work cannot all be done at once, but it is the hope of the University gradually to develop on the campus one of the greatest urban educational institutions in the country.

The pamphlet abounds in statistical information regarding health. On any given day it is said that three persons out of every hundred are ill. In Illinois 200,000 persons are on the daily sick list; in the United States, over 3,000,000. It costs the United States a billion dollars annually to be sick, or nearly a million dollars an hour. If preventive medicine could every where be practiced, nearly



Architect's drawing of what new Alexander McKinlock Memorial Campus of Northwestern University will look like when completed. The main building will house hospital, medical, and dental schools. The law and commerce schools will occupy separate buildings. The University is now nearing achievement in a five million dollar campaign to erect the first units of what eventually will be the tallest university building in the world, and one of the nation's largest urban campuses. The location will be on nine acres of ground on Lake Shore Drive at Chicago Avenue, Chicago.

fact that throughout the middle west physicians are imperatively in demand, applicants for medical training are turned away in large numbers.

The new medical school, to be located on a nine acre tract on Lake Shore Drive, will carry as its necessary concomitant a teaching hospital, designed by James Gamble Rogers, the architect who was responsible for the famous Harkness Memorial Quadrangle at Yale. To date more than

and with its Gothic tower surmounting the whole, the proposed school will be as some great cathedral of Europe with the University Law and Commerce Schools nestled beneath it like the houses of its bishop and its priests. With the possible exception of the medical school on the bay at Rio de Janeiro, the Northwestern Medical School will be unsurpassed in the beauty of its site by any such institution in the world. Moreover, in its new location the school, when completed, will be able to serve the North Shore section of Chicago, to increase

50,000 deaths could be prevented annually. In twenty years the mortality rate has been reduced 47 per 10,000 persons. If in the next two decades one-half as great a reduction can be brought about, each year the lives of over 200,000 persons who would ordinarily die can be saved. "The time may come when it will be a crime to let a patient die before he is 75 years of age from a preventable or curable disease," the pamphlet concludes.

Immunization By Ingestion

The New Theory of Immunization Introduces the Protective Agent Through the Same Route the Virus Follows in a Normally Infected Organism.

BY A. BESREDKA, PROFESSOR IN THE PASTEUR INSTITUTE OF PARIS, PARIS, FRANCE.

WHEN it was discovered that the blood of those who have recovered from an infectious disease, and have thus become vaccinated, contains anti-bodies it appeared at first that the problem of immunity held no more mystery for us. When, furthermore, the first facts of antidiaphtheric serotherapy were known, the immunization of animals against viruses of all sorts went forward so rapidly that in the space of a few months the pharmacopeia was enriched by a multitude of sera.

Following close on serum therapy came the prophylaxis of the communicable diseases. Numerous vaccines against cholera, plague, the typhoid and paratyphoid infections, dysentery, and the like were recommended on all sides and applied on a vast scale.

The development of vaccine therapy, though of more recent history, has followed the same course and has been applied in the most diverse diseases. It has, as we know, been particularly successful in infections due to the *Staphylococcus* and its beneficial effects have not failed to be attributed to the presence of specific antibodies. The benefits derived from such antibodies can hardly be estimated. It was therefore very natural that in them alone should have been found salvation, the master key to the edifice of acquired immunity; active as well as passive.

It is true that difficulties have been met with and failures recorded. Thus the hopes based on an anti-microbe sera,—typhoid, cholera, staphylococcus infections and the like,—have not been realized. But this has not prevented microbiologists from seeing in the antibody the most powerful weapon against infectious disease. Even in our day it is toward the intensive production of antibodies that all the efforts of preventive and curative medicine are bent.

Is it not time for a reaction against this tendency? This is a question we have asked ourselves from the time of our first studies on experimental typhoid fever.¹

It may be permissible here to recall

the investigations, now become classic, of our master Metchnikoff in regard to inflammation and natural immunity. For him it was morphological elements alone which took part in the battle of disease,—the phagocytes and the microbes. This conception which after the discovery of antibodies seemed too exclusive a one today appears to us to be the conception which dominates the greater part of the manifestations of immunity. Is it not indeed probable that what is true of natural immunity is also true of acquired immunity? If in natural immunity the conflict is between the phagocyte and the microbe with no place for a third factor, the antibody, why should we admit that a different condition obtains in acquired immunity and that in this latter instance the antibody plays a preponderating role?

We can scarcely conceive that in nature there exist two distinct mechanisms of defense, one cellular, operating in natural immunity and one humoral in acquired immunity. Such a sharp line of demarcation shocks our conceptions of the continuity of biological phenomena. The basis of this study lies in the absence of antibodies in natural immunity while they are always present in the course of artificial immunity. But is it sufficient to demonstrate their presence, to infer that the antibodies form the basis of artificial immunity, and that without them it would not exist? Are we not in this case victims of the adage "*post hoc ergo propter hoc*"?

It is true that cases have been reported where this parallelism between the manifestation of immunity and the appearance of the antibodies has been lacking but it was said that these were exceptions that confirmed the rule. Thus faith in the overwhelming importance of the antibodies has not been shaken. We ourselves based all our thinking on this idea for many years until the day when a new fact made us doubt this role of the antibodies. This new fact was involved in a study of anthrax, and it has made necessary the complete revision of certain chapters in the theory of immunity.

As everyone is aware the anthrax bacillus is one of the most pathogenic of microbes for laboratory animals, and the guinea pig is particularly susceptible to its attacks. Numerous investigators have sought to confer upon the guinea pig an immunity against this deadly malady but without success. With the utmost effort all that has been accomplished has been to make it possible for the guinea pig to survive a fatal dose, not of the original virus, but of the second vaccine. What is the reason for this difficulty? It has been generally assumed to be the extreme sensibility of the animal with respect to the particular bacterium in question. On the contrary our experiences, of which the full exposition would involve too many details for summary in the present paper, have shown that the assumption of the unusual sensibility of the guinea pig is incorrect. Furthermore they have made it clear that this animal can be as easily vaccinated as the sheep or the cow.

In studying the mechanism of susceptibility in the guinea pig we were led to the apparently paradoxical conclusion that the guinea pig is actually resistant to anthrax. In fact when one inoculates this bacillus into the peritoneal cavity or the tracheal canal or even into the subcutaneous cellular tissue the guinea pig remains uninjured. Let us hasten to add, it remains uninjured only on condition that in the course of these various inoculations one takes care to avoid breaking the skin. As soon as the skin is broken death is inevitable. In contrast to all the other organs which are resistant toward anthrax, the cutaneous tissue, and it alone, is receptive in the guinea pig.

In the light of this discovery we resumed our attempts at vaccination; only instead of proceeding by subcutaneous or intraperitoneal inoculation as is the usual practice, we sought to vaccinate the guinea pig through the most susceptible tissue, that is by the skin. Our reasoning was simple. The guinea pig is highly resistant to anthrax. In order that this resistance may become complete it is only necessary to vaccinate the

1. Ann. d. l'Inst. Pasteur, March, 1911, 194.

skin. Once this is accomplished the whole animal should become refractory to anthrax. Exactly this result has been achieved. In producing a cutaneous vaccination we have realized a cutaneous immunity and once this cutaneous immunity was established the animal could be inoculated by almost any route. From a high natural resistance the guinea pig has been raised to a point of practically perfect resistance. It may be added that we have been able to assure ourselves of the entire absence of antibodies in the blood of the guinea pigs thus vaccinated. We were then dealing beyond question with a case of strictly local immunity.

Vaccinate Receptive Organ

This was the point of departure for all the investigations which we have since carried on in regard to local immunization and immunity. It was clear that before attempting to vaccinate against any infectious disease it was necessary to discover which is the receptive organ in that disease. All later efforts should then be directed toward vaccinating the particular organ in question by introducing the active substance by the same route which the virus follows in a normally infected organism. By this course one should be able to realize a maximum immunity with minimum effort.

This principle has already found application in a certain number of infections due to *Staphylococci*, *Streptococci*, *Bacillus pyocyaneus* localized in the skin and the bony system. In the present article we wish to dwell solely on those diseases which affect the intestinal tract, dysentery, typhoid fever, and cholera.

It is obvious after what we have said in regard to anti-anthrax vaccination that in this case it was the oral route which was indicated. Our own experimental studies as well as all other available information indicated that in these infections the organ which is primarily receptive is the intestine. It is made clear by these investigations that the Shiga bacillus, the typhoid and paratyphoid bacilli, and the cholera vibrio exhibit a remarkable affinity for the wall of the intestinal tract. Whether these microbes are injected into the peritoneal cavity, the blood stream, or even the subcutaneous tissue, they always direct themselves toward the intestine and it is always there that one recovers the infecting organism frequently in a state of purity. For all these infections the intestinal wall occupies the same relation that the skin does in the case of anthrax. To

bring the vaccine into contact with the intestinal wall in a manner at once direct and safe there is evidently but one method,—oral administration.

So much for a priori reasoning. Our first experiments, however, did not encourage us to persevere along this path. Investigations on laboratory animals failed to give favorable results, the direct ingestion of the vaccines seemed to be powerless to produce an immunity against subsequent inoculation of a fatal dose of the virus. We now understand the reason for these failures. It appears that to bring the vaccine into intimate contact with the receptive cells of the intestinal tract, preliminary treatment is necessary. Under ordinary physiological conditions these cells are protected by a layer of mucus. This mucus interposed between the receptive cells and the virus which penetrates by mouth into the intestine guards the organism against infection and at the same time eliminates the possible effect of the vaccine. In order to give free play to the vaccine we thought of the possibility of utilizing bile. In the attempt to obtain the desired effect we were not counting merely on the addition of a small quantity of ox bile to the bile already nominally present. The addition of ox bile does much more than this. It has the power of intensifying normal biliary secretion of the animal (homo stimulation) it increases the peristaltic movements of the intestine, it removes the mucous surface. In short, it brings about a preliminary cleansing of the intestine which makes it possible for the receptive cells thus exposed to come into immediate contact with the vaccine, to be impregnated with it, and thus to become armed against a new attack.

This preliminary sensitization by the use of bile is indispensable, as our experiments demonstrate, when one attempts to vaccinate against the bacteria of the typhoid-paratyphoid group or against the cholera vibrio.² It is not necessary on the other hand in the case of anti-dysenteric vaccination, the Shiga bacilli being capable themselves without artificial aid of desquamating the internal surface of the intestine.

A Single Receptive Agent

If the mechanism of vaccination against typhoid, dysentery or cholera is that which we have described how does it happen that by the methods ordinarily employed, that is, by subcutaneous injections, such good suc-

cess has been obtained in vaccinating against these maladies. In our opinion the mechanism of vaccination is the same in both instances. Let us recall that in all the diseases with which we are dealing there is only one receptive organ, the intestine. In virtue of the affinity of all these viruses for the intestine the microbic substances which compose the vaccines are invariably carried toward their organ of predilection. The vaccines may be injected into the blood, into the peritoneum, under the skin or at any other point in the organism,—their real efficiency is manifest only from the moment when they enter into combination with the receptive cells, that is to say, from the moment when they arrive in the intestine. Vaccines injected subcutaneously therefore act in exactly the same way as those introduced by the mouth, though obliged before arriving at their destination to pursue prolonged travels through the body. The subcutaneous vaccination requires a longer time to act; obliged to traverse various tissues each of which retains a part, these vaccines arrive at their goal somewhat weakened.

Principle is Established

Furthermore since they give rise to antibodies useless in the specific defense reaction these subcutaneous vaccines operate at the cost of a general reaction which it would be far better to avoid. There is no doubt that the subcutaneous route can be used for vaccination against diseases of the intestinal tract, but between this quite roundabout and sometimes dangerous procedure and the oral method which has no drawbacks, while presenting the same advantages, our choice should be clear.

A large number of oral vaccinations have been conducted in recent years nearly all in the case of typhoid and paratyphoid. Their harmlessness is today solidly established. Such vaccinations have been carried out in infants, in pregnant women, in undernourished subjects, in subjects presenting definite contra-indications with respect to subcutaneous vaccination. No trouble has ever been noted sufficient to interfere with the continuance of their usual occupations by the patients and it appears clear that immunization by the oral route being powerful locally, that is to say limited to the intestine, can be established without the participation of any other organs of the body. In a recent epidemic in the course of which a considerable number of persons were un—(Continued on page 932)

² Very recently Messrs. Leger and Boury have shown that the same thing is true for oral vaccination against plague.

The Adolescent Girl Becomes a Health Asset to the Home

The Founding of Mothercraft Courses. New Bedford Schools Evolved a Solution for a Prevalent Social Problem

BY HUGH GRANT ROWELL, M.D., FORMER DIRECTOR OF HEALTH AND HYGIENE, SCHOOL DEPARTMENT, NEW BEDFORD, MASS.; NOW LECTURER AND ASSISTANT PHYSICIAN IN TEACHERS COLLEGE, NEW YORK CITY.

WHETHER in a school system or in executive work in a broader health program, the administrator must constantly keep himself reminded of the actual needs of his clientele and shape his departmental activities to meet them. That it is no easy task at times is most obvious. That the interdepartmental wall must be broken down, that every organization possible need to be utilized to accomplish a given end is self evident. The subject of this paper involves an apparent solution, at least in part, to that very serious problem—infant mortality.

Come through any congested district and notice the child mothers. As soon as one child can toddle, another frequently occupies the cradle. The tiny place of abode soon teems with small irresponsible humanity and it devolves upon the older children to assist the overworked mother in all possible ways. Should the mothers as well as the father work outside the home, the difficulty becomes even more acute. This problem is encountered in any city of any size.

The type of population may form some factor but if it does it is only in that the newer the immigrant is to the country, the greater the need of definite help.

Granting good municipal health programs, including prenatal clinics and care, intelligent obstetrics, pre-school clinics including those for the modification of milk, there is still a big gap left.

Two definite phases are noted: (1) Is the home care of the baby intelligent? (2) What happens in cases of sickness in the family? Hospitals and

clinics care for the urgent cases when disease exists. But this is an age of preventive medicine and who is to care for that side? What of minor but incapacitating illnesses? What of convalescences? District nurses cover their work well, but what of the hours they can not spend on a given case? Who is to care for the situation then? The answer lies in

might almost be considered homicidal. Therefore any instruction, if only partially successful, is at least a step in the right direction. Several sources for this exist.

Courses may be given by semi-private organizations; they may be given through public institutions, commonly the schools; or the two forces may unite as was done in New Bedford. In good cooperation, the last method offers great possibilities. That mothers can use the same instruction is obvious but the belief exists that the growing generation represents more hopeful soil.

In schools, the work may represent an actual course in the curriculum, either required or elective, and is usually placed in the junior or senior highs or special schools. If time can not be available otherwise, a splendid start can be made by a volunteer, after-school course, and the only difficulty will be to find accommodations for those who desire to take it. This was tried in New Bedford this year, the Mothercraft Course being used. The equipment was largely

made by the school sewing classes and the rest purchased, the expense being very nominal. The New Bedford Women's Club yearly plans some definite sort of health work for their contribution to the schools and after a course of training for several months by a graduate nurse of unusual skill in this work, certain club members took charge of several classes and made an instant success as teachers.

the various courses in infant welfare or child hygiene (whichever term you prefer) and in home nursing. These will be discussed in the broader sense with some reference to local methods as possible object lessons.

First considering the child welfare; obviously if a brief, practical course could be given to groups of mothers' helpers, the methods being those approved in hospital circles, the assistance would be more intelligent and the results less dangerous. Methods prescribed by grandmothers may be good at times; at other times they



Interest in child welfare problems grows with the acquisition of skill in devising ways and means to care properly for the child. And graduates of Mothercraft classes are not slow to utilize their skill in their homes.

made by the school sewing classes and the rest purchased, the expense being very nominal. The New Bedford Women's Club yearly plans some definite sort of health work for their contribution to the schools and after a course of training for several months by a graduate nurse of unusual skill in this work, certain club members took charge of several classes and made an instant success as teachers.

Public interest was thoroughly aroused and good support was given by the papers. On the evening of the

graduation of the first group, exercises were held including demonstrations of the work, reading of essays, a short graduation address by the school director of health and hygiene, apt remarks of a practical nature by the superintendent of schools, and presentation of diplomas and buttons by the president of the Women's Club assisted by the class teachers. A large crowd attended, including members of the school board, and this combined with splendid newspaper write-ups placed the work on an absolutely stable plane for the future.

A word about the Mothercraft Course. It is the product of years of unselfish work by Miss May Bliss Dickinson of Boston, a former nurse and public health executive and has the advantage of brevity, clarity, and thorough planning. Originally tried in Massachusetts under the auspices of the Federation of Women's Clubs, it has spread through the country and at present seems to be at least as popular and well-approved as any course. A small book called "Children Well and Happy" contains the material and it is well presented. For the purpose for which it is used, it is of the utmost value. This represents a start. Previously certain courses had been given under other auspices, but I think most persons will agree that such matters under school auspices offer best possibilities if for no other reason than better facility and greater accessibility of students.

In a high school or special institution a more ambitious course may be desirable with greater equipment, depending largely on local necessities.

A definite step of great importance is the introduction of this work into continuation schools for the girls of fourteen and fifteen. In New Bedford last year we introduced it and made it a required subject, offering a course totalling forty hours, about one-third being infant welfare and two-thirds home nursing. This may

seem brief but the time in such schools is only a very few hours per week per child. The course is flexible and somewhat regulated by needs discovered through two hours' home visits a day as part of the duties of the teachers and trained nurses.

This continuation school group not only represents those who may well care for some of the children after working hours but they are also to be considered the prospective mothers of a few years hence, since this group marries early. Actually they are probably the most hopeful group of all from a public health point of view since they are thus early started on

becomes the solution to many minds. To others of us, a better solution may be a pretty universal understanding of the rudiments of home nursing by the growing girl, regardless of her social status. In this connection I believe that each trained girl of this type is actually a missionary into the home, and others may learn from her.

To humanize the idea, just imagine yourself for a moment sick and dependent upon your family for nursing. Supposing your body for some reason was very tender and every jolt hurt. Then imagine an untrained person hauling you about to change the sheets, to give you various comforts that are needed, perhaps to move you about with every move a moment of agony. What then would be your gratitude to have some one in the house or family who through the lessons of the home nursing course was able to do these things for you with a minimum of discomfort. One can conceive of wills being changed under such circumstances.

The subject matter of all of these courses is obvious, yet a few



All activity is education, but of particular use is specific training in providing comfortable and hygienic conditions under all circumstances. Their practicality accounts for the very human interest all the girls display. These high school girls are the home-makers of tomorrow.

the right path toward good health.

Home nursing courses are high school and special school subjects. High school here is to mean both junior and senior. That more advanced institutions teach this work as well is also true. The continuation school side has been brought out.

These courses represent a solution to several difficulties. Most of us realize that the profession of nursing is no longer attracting as many young women and many of those who do take the training soon go into public health work for reasons which it does no good to mention. Such being the case, nurses are and will be a considerable expense for the sick and may be scarce and hard to secure as well. This being true, the training of practical nurses, so-called (the present day practical nurse is often called much harsher names),

ideas may be mentioned—undressing the baby, bathing the baby in the various ways, simple modifications of milk of the type prescribed for home modification by physicians, clothing the child, preparation of makeshift cradles from baskets with improvised mattresses as well, using common household articles—this for infant hygiene. For home nursing we think of care of the bed, including choice of material, handling the patient when the bed is changed with an actual lifeline dummy for practice, bathing the patient in bed, sickroom arrangement, diet, preparation of diet trays, and precautions in the event of contagion. The prerogatives of the skilled nurse are encroached upon in no way likely to lead to danger or confusion, and yet the baby or the patient is bound to be benefited.—(Continued on page 927)

State Subsidies for Maintenance of County Sanatoriums*

Under Minnesota Scheme State Aid Has Meant Better Business Management, Standardized Records, With Adequate Medical Supervision, and Improvement of Service Throughout

By ROBINSON BOSWORTH, M.D., EXECUTIVE SECRETARY, ADVISORY COMMISSION OF THE STATE SANATORIUM FOR CONSUMPTIVES, ST. PAUL, MINNESOTA.

THE tuberculosis sanatorium movement in the United States has been active during the past twenty years. Starting out almost exclusively as a state sanatorium movement, modern thought and experience have gradually evolved the present widespread county sanatorium system.

State sanatoriums have been established in numerous communities and we believe always for the reception of "early," "incipient," or most "favorable cases" of tuberculosis. While state sanatoriums have in the main been filled to capacity and in some states need has arisen for more than one state sanatorium, the percentage of incipient cases admitted has not reached that point anticipated or hoped for.

From our observation of statistics from numerous sources we gather the fact that incipient, or early stage cases, comprise about 17 per cent of the total attendance in most institutions intended by law to be exclusively for this class. The moderately advanced comprise between 40 and 50 per cent of the inmates.

A true appreciation of tuberculosis and the many problems relating to its control and eventual eradication immediately stamp it as a "community problem" in the fullest sense of the term.

Twenty years ago it was recognized as a foe worthy of the energies of the state, hence, the state sanatorium.

In fact, there were many who have considered the problem one for the national government to attack.

While changes have gradually taken place in the minds of those best informed regarding hospital and sanatorium facilities for the tuberculous, this change does not include any hint that the tuberculosis problem is any

ternational Congress in 1908, "that the most important feature of the movement to control tuberculosis must be hospital care for the advanced cases and sanatorium care for the early cases—these two requisites could be effectively provided only by locating institutions near enough to the homes of the patient so that they would readily avail themselves of their benefits."

Many states have gone far in carrying out the above recommendations through the establishment of numerous county sanatoria.

In many of these states the public was strongly of the opinion that the state should supervise local county sanatorium activities against tuberculosis. In the more advanced communities not

only was state supervision demanded but state financial assistance was sought and obtained.

Financial aid in the form of subsidies granted to assist in the construction or maintenance of local county sanatoriums associated with state supervision is the greatest demonstration of the fulfillment of the state's obligation in a fight so large and so many sided as to warrant its being classed a community problem.

State aid is granted apparently for two purposes: (1) To encourage and promote the building and use of many sanatoriums by counties, (Mass.)¹ (2) To stimulate construction of many

1. Special report of the Massachusetts Department of Health relative to tuberculosis in the Commonwealth, and state, county, and municipal hospitals, January, 1923, p. 62.



Patients' cottage at Glen Lake Sanatorium, Hennepin County, Minnesota.

the less a problem of the community than was the opinion when sanatoriums were strictly limited to state institutions. On the contrary, legislation has been adopted in numerous states establishing state supervision over activities directed against this disease which would indicate that the public is strongly of the opinion that the resources of the state, as an aid, are required and should be with logic employed.

Many Small Institutions

The modern tendency is toward the establishment of numerous institutions serving communities of limited area and population—the county sanatorium. This is directly in line with recommendations adopted by the In-

*Read before the National Tuberculosis Association, Santa Barbara, Calif., June 20-23, 1923.



View from south of Riverside Sanatorium, Granite Falls, Minn.

sanatoriums and insure high standards of construction and maintenance.

Most of the states in which laws authorize counties to establish and maintain tuberculosis sanatoriums have not seen fit to assume any obligations, such as, cooperating with the county, either financially or supervisory.

Among a total of 41 states replying to a questionnaire requesting county sanatorium data, 26 states authorize sanatoriums: One state, Minnesota, grants aid toward construction (up to \$50,000 for any one sanatorium); nine states grant state aid toward maintenance. The amount of state aid varies from \$7.50 per week per free case to three dollars per week, with a limitation in one state of three thousand dollars annually to an institution.

Those states granting financial aid are listed in Table 2.

It was the intention of Minnesota to assist the counties by paying an amount equal to one-half the total cost of caring for a free patient, but as conditions have changed, increasing the maintenance cost, the five dollars per week received is nearer one-fourth the cost. In Michigan, the amount paid is one-half the cost of maintaining the sanatorium but must not exceed three thousand dollars.

Referring to possible intentions on

the part of the law-making bodies in granting state aid we must take into account several circumstances. In Missouri, \$7.50 is paid, the highest in the country, it was evidently a financial assistance, pure and simple, intended to stimulate establishment and to help carry the burden—this for the reason that no supervision on the part of the state was included. It

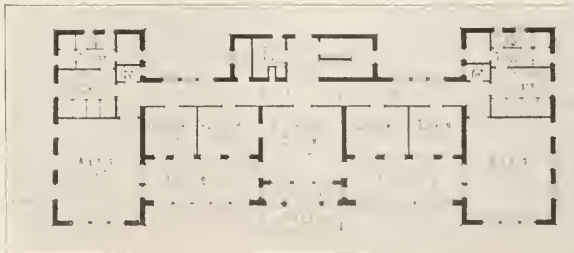
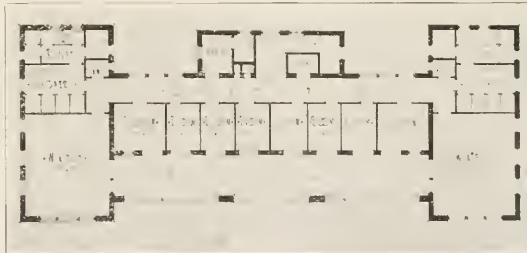
from the state department of health requested and received by the Massachusetts legislature include the elimination of all further state aid on the ground that as the total annual deaths from tuberculosis are now exceeded by the total number of beds available for tuberculosis the original purpose of the subsidy would seem to have been attained.³

There seems to be no desire to in any way influence in the future the type of institution, either as to its physical features or its management by making state aid dependent upon high standards, else the above recommendation would not have been made.

It may be impolite to remark further that other comments offered

by the state department of health to the Massachusetts legislature might not have been possible had previous state aid been based upon standards of construction and management for we note the following: "From a thorough study of the matter it appears that certain of the municipal

institutions lack both personnel and equipment sufficient to accord with what are considered adequate standards for the hospital treatment of tuberculosis."⁴ "The cost of maintenance at the county tuberculosis hospital—(Continued on page 930)



Floor plans of Patients' cottage at Glen Lake Sanatorium.

was not granted to assure high standards in construction or management.

In Massachusetts aid was granted for the purpose of stimulating the establishment and use of county sanatoriums and it is of great interest to learn that recent recommendations

2. Section No. 3 of Massachusetts Report, p. 84.

3. Section No. 1 of Massachusetts Report, p. 86.
4. Page 71 of Massachusetts Report.

Purified Oysters

BY WILLIAM FIRTH WELLS, BIOLOGIST AND SANITARIAN, NEW YORK STATE CONSERVATION COMMISSION, ATLANTA, NEW YORK.

SHELLFISH naturally thrive in tidal estuaries draining the fertility of the continent. Here are the most favorable conditions for the multiplication of the myriads of minute plants and animals on which they feed. It is unfortunate for oyster culture that these estuaries are also valuable harbors, about which population concentrates, and pollutes the tidal waters. Thus many of the finest grounds are restricted by public health regulations, and so any efficient and reliable method of purification should concern sanitarians as well as the shellfish industries. During the past year the first practical plant has been certified by the New York State Conservation Commission, thus, it is believed, marking the end of the period of preliminary study and the establishment of this process as a part of the oyster industry. Fifteen thousand bushels of oysters have been purified commercially, marketed with the approval of the authorities, and consumed by an appreciative public.

Tests Confirmed

Since the operation of this plant represents the consummation of successful scientific, commercial, and administrative studies, a brief review of the development of the process may have a public health interest. The underlying principles were carefully worked out during 1914-1915 at the Fisherman's Island, Va., experiment station in charge of the writer, serving under Surgeon General H. S. Cumming, U. S. Public Health Service, then in charge of the investigations of coastal waters. It was discovered that shellfish closed tightly in the presence of considerable excess of free

chlorin, thus protecting the interior tissues from its effects, but permitting the sterilization of everything exterior to the shells; and secondly, that shellfish kept in pure salt water rapidly eliminate by their natural functions all interior contaminating materials accumulated on the tissue surfaces. A process of artificial purification based on these principles was described in *Public Health Reports*, July 14, 1916. (Reprint 351).

the process. Cooperative experiments, carried out in August and September, between the U. S. Bureau of Chemistry, the U. S. Public Health Service, the State Conservation Commission, and the city department of health, and witnessed by the state department of health, were described in *Public Health Reports*, April 22, 1921 (Reprint 362. Meeting at the invitation of Conservation Commissioner George D. Pratt, official representatives of these

Federal and city authorities, together with the U. S. Bureau of Fisheries, accepted the results as demonstrated, and endorsed the process, subject to official supervision by the conservation commission and inspection of the product by health authorities. A set of requirements embodying these findings was drawn up by the commission, and, after approval by the authorities, was adopted, and offered to the committee of growers.—*Fishing Gazette Feb., 1923.*

Mr. G. Wilbur

Doughty, a member of the committee, convinced that the process offered a practical solution of the problem, immediately applied for assistance in constructing and operating a plant. The detailed account of the efforts of Mr. Charles R. Bettes, engineer, the Electro Chemical Company, the General Electric Company, the U. S. Public Health Service, and the State Conservation Commission in perfecting the installation and operation of this plant, and the results of the laboratory tests, very generously made by the Federal Bureau of Chemistry and the New York City laboratories, and inspection by the state department of health, are of more particular interest to the sanitary engineer. It is sufficient to state that



Oyster purification plant established by Sprague & Doughty at Inwood, L. I. Farther basin full; near basin filling; pump and electrolytic cell in house at left. Infiltration trench runs from bulkhead to house back of basins.

During the summer of 1916 further confirmatory tests were made, and in the fall the process was tried out under commercial conditions, at Jamaica Bay and New Haven Harbor, in conjunction with Dr. Payne B. Parsons of the U. S. Bureau of Chemistry. No technical difficulties arose under these conditions, and the process was therefore pronounced a practical measure.

In April, 1920, Senator Royal S. Copeland, then Commissioner of Health of New York City, entertained a hearing of oyster growers to consider such sanitary measures as might serve to enable certain New York waters to be continued in oyster production. A committee of growers, there elected, requested the state conservation commission to demonstrate



Oyster purification plant, Inwood. Interior of control house, showing electrolytic cell (1) and rectifier (2).

before the plant was certified, shellfish were handled as economically as in floats hitherto, that control was as simple and direct as an automobile, and that the tests far surpassed existing standards.

The following description, extracted from the 1922 annual report of the New York state conservation commission, may serve to confirm these statements.

Inwood Plant

The oyster purification plant, which has been successfully constructed and has received the certificate of the commission, is located at Inwood, Long Island, and is owned by Messrs. Sprague and Doughty. The general features of this plant are as follows: Two concrete basins, each twenty-two feet by twenty-five feet by eighteen inches deep, with a capacity of six thousand gallons each and each capable of handling two hundred bushels of oysters. Water is obtained from a gravel-filled trench near the basin. It is salt water derived from Jamaica Bay and has salinity of 1.021. Pump of one hundred twenty-five gallons per minute capacity. Sterilizing agent, hypochlorite of sodium produced by electrolysis of the sea water. A portion of the water pumped passes through an electrolytic cell (Electro Chemical Company) and thence returns to the pump suction and is mixed with the inflowing water. The strength of sterilizing solution is controlled by regulating the amount of current entering the cell. An eleven-point switch on the rectifier used makes this operation one of great simplicity.

Restrictions on Process

Oysters to be treated by this process must be reasonably free from mud and organic contamination and must

not, when first placed in the basin, score over five hundred. They may be brought within these requirements by previous treatment. Water used must not be grossly contaminated with sewage or other filth, must be reasonably clean and, before chlorination, must not score over 5 (five portions of the water sample to be treated as five shellfish in securing this score). It may receive preliminary treatment. Salinity must not be less than 1.014.

Process.—The object of this process is to sterilize the outside of the oyster and to allow it, by natural processes, to free itself of such infected material as may be in its shell or body cavities. These voided materials are then removed or sterilized. The edible portion of the oyster is not exposed to the action of any chemicals; the animal is merely allowed, in a perfectly natural manner, to wash itself clean in sterile water. In detail the process is as follows:

(1) Oysters of suitable cleanliness are placed in a clean empty basin. One bushel of oysters requires twenty-five gallons of tank capacity. Oysters must not be in layers over eight inches in depth and must be so arranged that the water can freely circulate about them.

(2) The basin is filled with water showing, by ortho-tolidin test, an excess of free chlorin. Amount of chlorin regulated by experience to meet the following requirement.

(3) Sterilizing interval; during which there must be more than 0.2 parts per million of free chlorin in the water. Starting when basin is completely full, lasts for thirty minutes, or such longer period as may be necessary to reduce the free chlorin to less than 0.5 parts per million.

(4) Drinking interval. Starts at end of previous interval and lasts for at least six hours. During this interval the oysters are expected to be open and active.

(5) Basin is drained.

(6) Basin refilled with chlorinated water as in (2).

(7) Sterilizing interval; same as (3).

(8) Drinking interval of not less than twelve hours.

(9) Oysters removed, basin drained and cleaned.

Supervision.—This process is not difficult to carry out and the cost is so low as to make it commercially practicable. It is evident that successful results depend on the care and intelligence of the operator and the commission will certify such plants only after it has passed on the qualifications of the person in responsible charge.

Saferguards.—Severe restrictions as to the quality of the water used, the degree of pollution of oysters which may be subjected to this process and the qualifications of the responsible operator are imposed by the commission. In addition the nature of the process is such that there is a large factor of safety to offset any irregularities in the treatment. As the meat of the oyster is not touched by chemicals, a stronger dose of chlorin can be used than is possible in the sterilization of drinking water; actually ten parts per million of free chlorin are developed in the water entering the basin, an amount that would make water undrinkable and which is about twenty times the dose ordinarily given to potable water. It has been found at Inwood that with this dose of chlorin in the influent water, the water in the basin, when full, contains between one and two parts per million and that during the subsequent thirty-minute sterilizing interval this falls to between 0.2 and 0.5 parts per million. If for any reason this reduction does not take place, the sterilizing interval is prolonged until the chlorin content is below one-half part per million. It is thought that this process is more thorough and more certainly effective than any to which other foods are subjected, except those which are completely sterilized, as in certain canning processes.

Results Obtained.—Results which have been obtained at Inwood are shown below, the numbers in each case being the "score."

Water of the Bay.....	50-500
Untreated water from trench.....	5
Water entering basins.....	0
Untreated oysters.....	50-500
Oysters after first drinking interval	5-50
Oysters after final treatment	0-5
Allowable score for marketable oysters	50

Solved by Concerted Effort

Only by the united efforts of the oystermen, the health authorities and the commission could this process successfully be established. Acknowledgment is gratefully made for the aid freely rendered the commission by Messrs. Sprague and Doughty, the U. S. Public Health Service, U. S. Bureau of Chemistry, New York City Department of Health, the individual officials and employees of those bodies, and the manufacturers of the special equipment used.

The sanitary significance of this process should be apparent to those

familiar with the history of water and milk supplies. Improvement has not been limited to protection of the watershed or dairy. Higher sanitary ideals have been made possible through positive methods of removing chance infection. The cases are becoming more exceptional where original purity in water or milk guarantees the safety insured by purification or pasteurization. Likewise, it is becoming increasingly difficult to protect shellfish from natural contamination. The waters are always free for navigation, and, in the act of harvesting, are plied by dredge boats. Only if accumulated foreign materials are eliminated can shellfish really be considered "certified."

True conservation demands the constructive development of all legitimate means of utilizing most fully our natural resources. The intrinsic importance of food producing resources is daily becoming more apparent. An increasing population must hesitate before unnecessarily condemning fertile shellfish farms.

Results of Sanatorium Treatment in Germany

Reiche (*Beitr. z. Klin. d. Tuberk.*, Vol. 51, p. 210) presents data in regard to after life of 1866 tuberculous patients receiving sanatorium treatment during the decade 1895-1904. In 1921 only 35 per cent of these patients were dead and 47 per cent were fully self-supporting. This remarkably good record is made possible by the fact that more than half the cases were in the incipient stage when admitted.

Pathology and Diagnosis of Manganese Poisoning

The ingestion of manganese oxid (by cats) results, according to Schwarz and Pagels (*Arch. f. Hyg.*, Vol. 92, p. 77) in a marked increase in the number of red blood cells and in hemoglobin content. Later a change in a reverse direction was sometimes manifest. The authors suggest that workers in manganese should be subject to blood tests and that those who show abnormal results in either direction should be given very careful medical examination.

Bakers' Eczema

Tankard suggests that potassium persulphate, contained in some flours, is the cause of bakers' eczema. Water when added to flour containing this chemical produces an acid reaction thought to be responsible for the

skin troubles. In the shop where this investigation was carried on trouble was experienced only in that part of the bakery where the flour contained persulphate, the flour under investigation showing 6.3 parts of potassium persulphate per 100,000. (*Lancet*, Aug. 11, 1923, 5215, p. 279).

How to Keep the Inside of a Tent Cool

The Bureau of Standards has devised means for keeping the inside of balloon hangars at as low a temperature as possible. As the same methods are particularly interesting as means for keeping the inside of tents cool, and for keeping down temperatures in any cloth covered enclosure, and are useful in a reverse way for getting the greatest amount of heat from heating appliances, the process is given herewith:

If the outside of the tent is covered with a highly reflecting substance as white paint, while the inside is covered with aluminum paint, the radiation into the interior will be reduced by at least 78 to 81 per cent. The reason why this method of painting has this desirable effect is that white paint reflects the sun's rays while the aluminum paint is a poor radiator of the long-wave heat rays. Of course, it must be remembered that this scheme for painting tents would have just the reverse at night and would prevent the heat on the inside of the tent from escaping into the cooler air outside.

This same work proves that aluminum paint is the poorest possible kind of a coating for heat radiators in houses, at least from the point of view of obtaining the greatest amount of heat from a given surface, since aluminum paint has a tendency to keep the heat inside and not allow it to escape into the room.

Botulism Epidemics

Botulism has been known for centuries in parts of Germany, where it was called "sausage poisoning," but the germ was not discovered until 1895; and no cases of it are known to have occurred in the United States until about 1909. Since then, according to a bulletin recently published by the U. S. Public Health Service, ninety-one single or group outbreaks of botulism have been reported in the United States and Canada. A total of 345 persons have been affected, of whom 213 have died, giving a case mortality of 61.7 per cent.

Of the ninety-one outbreaks only thirty have been proved bacteriologically or toxicologically to be due to botulism, the others being so adjudged from the symptoms. About two-thirds of the outbreaks (25 proved and 38 not proved to be botu-

lism) were caused by plant food, and about one-third (5 proved and 14 not proved) were caused by animal food.

The following products have been proved or assigned as the particular food in which the germ causing this disease developed in the cases investigated: String beans, home canned 17; commercially canned, 3; corn, home canned, 9, commercially canned, 1; asparagus, home canned, 5; apricots, home canned, 3; pears home canned, 2; spinach, home canned, 2, commercially canned, 6; beets, home canned, 1; commercially packed, 2; liquor home brewed, from old home-canned products, 1; cottage cheese, home prepared, 2; pickled mackerel and herring, home preserved, 1; ham, home cured, 2, commercially cured, 1; sausage, home prepared 1, commercially prepared, 2; salt pork, home cured, and beef products, home prepared, 3; minced olive relish, commercially canned, 3; ripe olives, commercially pickled and bottled, 7; pork and beans, commercially canned, 1; tomato catsup, commercially bottled, 1; clam juice, commercially bottled, 2; tuna fish, commercially canned, 1; evaporated milk, commercially canned, 1; and minced chicken, commercially prepared, 1.

It is to be noted that spoilage due to botulism germs cannot always be determined by the appearance or odor of the food.

The Common Drinking Cup

While the common drinking cup has been banned by law, it persistently reappears and awaits the coming of the ignorant or thoughtless person or the care-free child. The common drinking cup may be avoided for esthetic reasons, or because of a knowledge of its potential dangers; but with all its repulsiveness it is uncommon to find the finger of suspicion pointed at one particular cup as the cause of a certain case of disease. An instance of this kind, however, is reported as follows in the current issue of *Public Health News*, the monthly bulletin of the department of health of the state of New Jersey:

At a country club a thirsty golfer used the glass setting beside a water faucet. As soon as he was through with it an imitative child used the same glass. Later it was found that the golfer at the time was developing typhoid and the child developed the disease about two weeks after using the glass. It was only because the club was not entirely public and the people there were known one to another that any suspicion could be directed toward the glass which had been provided to spread nothing more than refreshment.

Accident Prevention and Health Service in Industry

Sperry Gyroscope Company Accident Rate Less Than Two Per Month Per Thousand

By M. R. LOTT, PERSONNEL SUPERINTENDENT, SPERRY GYROSCOPE COMPANY, BROOKLYN, N. Y.

THE company had accepted an order for a special machine which the customer required by a given date. Work was progressing according to the schedule laid out by the production control department but it was considered advisable to speed up the machine work a little to allow more time for assembling and testing the completed product. The foreman of the lathe department picked John Jones to do some of the most important of this urgent work because Jones was a careful dependable man, quick and accurate in his performance and always ready to respond wholeheartedly to any appeal from the foreman to help out on an emergency job. It happened, however, that John Jones had a little indigestion when he came to work in the morning, he did not feel sick enough to see his family doctor or to stay at home, but he did not feel comfortable. However, when the foreman brought the rush job to him, he dug into it with his best

efforts and made good progress at first, but the headache that had set in, developed rapidly. There was no ready relief available for there was nothing at the factory in the way of medicines except a first aid kit containing a few bandages and a little iodine. Jones kept up in spite of the pain but he could not keep his mind on the work so when a big piece of the metal turning curled up around the lathe tool, he absent mindedly took his hand to brush it away and suffered a severe cut on the wrist, which meant no work for John Jones for the rest of the day nor for the

days while his hand was useless.

Such experiences have been common in industry. They stand for suffering and decreased earnings on the part of the employee, as well as delayed production for the company. But can such happenings be avoided? Can such waste be reduced? The experiences of the Sperry Gyroscope Company and other organizations that have studied these occurrences and have provided adequate health service,

cured to devote his entire attention to eliminating the sources of danger as far as possible and to the education of the workers to think and act along safety lines. One of the first moves was to establish a plant hospital, to secure a nurse, and then a physician.

Immediately the lost time accidents dropped at an amazing rate: in fact they were decreased in seven months from a peak of forty-five cases per month per one thousand employees to two per month per one thousand employees. This showing has been generally maintained, and the accident rate still further diminished until we show a record for 1923 of only three lost time cases which involved a total of only 148 working hours and none of them was subject to compensation payments.

The questions may be raised, how has this record been accomplished? How does health service affect the accident record? How much does such service cost? In answering the first of these questions it may be



With physician and nurse in daily attendance, and service available for every emergency, both injuries and illnesses have attention sufficiently early to be effectual in by far the greater percentage of cases.

show results that are surprising in their effectiveness.

Before the Sperry Gyroscope Company had its health service or made a serious effort along the lines of accident prevention, the lost time cases due to accidents reached a peak of forty-five a month per one thousand employees. This situation was reached during the summer of 1917. There was no organized personnel department at that time, but as the accident conditions appeared to the management so unnecessary, for the business was in no way a hazardous one, a competent safety engineer was se-

lected of interest to explain something of the organization, facilities available, and methods used.

The work forms a part of the regular activities of the personnel department and is in charge of a safety director who works under the general supervision of the personnel superintendent.

The Safety Director is responsible for securing and maintaining safe and healthful working conditions for all employees and of this work the health service and minor injuries take a most important place. A nurse is in constant attendance and a com-

petent physician is available at the plant for one hour each day and subject to call at any time. Too much cannot be said concerning the importance of suitable personality in the people who render this service. Their attitude towards the employees with whom they come in contact may make or break any effort of the company to improve conditions.

Adequate facilities are provided for the first aid treatment in the plant hospital which is located in a light airy place convenient to the elevators and to the street. The equipment is not elaborate, there are no regular hospital beds, for there are well organized hospitals near the plant where arrangements have been made to care for any serious cases that might occur. A small room, however, is provided with a cot and facilities for the comfort and use of men who, need rest and quiet as a temporary condition, and an examination room is also available.

While the medical and first aid service is readily and freely available and employees are urged to take full advantage of them, it has been found necessary to have all treatments authorized by the head of the department in which the patient is employed. A simple form is used for this purpose, provision being made for a statement of the nature of the case, together with the time and cause of any injuries which may have been sustained. This establishes data for use in compensation cases and prevents the safety director from overlooking opportunities for correcting unsafe conditions and practices. These authorizations are made out in triplicate for all cases. The original is presented to the nurse and signed by the patient; the duplicate copy is retained by the department head for all cases involving loss of time, and forwarded to the safety director when the employee returns to work; the triplicate copy is forwarded to the safety director for his information and investigation.

The nurse maintains a daily register of all sickness and accident cases, together with the diagnosis, explanation and treatment. The new cases are separated from the re-visits and the information from this daily register is transcribed to individual record cards for reference purposes.

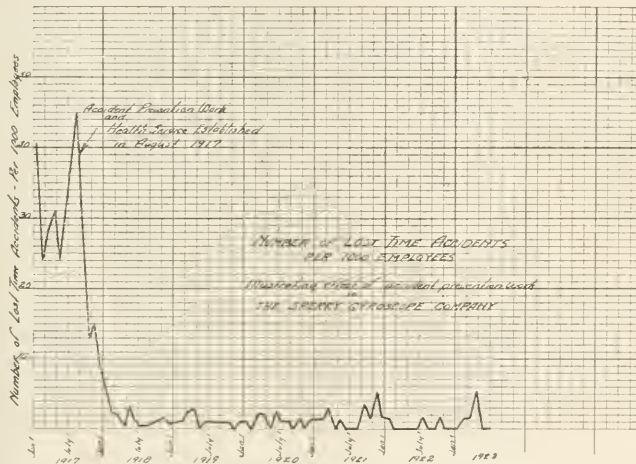
Whenever subsequent treatments are considered advisable, the nurse gives the patient an appointment slip to insure his return at the proper time.

It has been found advantageous to keep a continuous analysis of the nature and cause of all accidents as well as for the diseases and disabilities. A simple means is provided for this purpose through a weekly report form

under the heading of sickness and unknown reasons, that proper assistance may be rendered as needed. Cases of absence for more than three days duration, and for which no reason is known are investigated through home visits.

In reply to the question, "Does health service pay?" The experience of the Sperry Gyroscope Company makes it possible to state—that it does. For example, during the severe influenza epidemics occurring during the past few years, the company experienced only three per cent loss of attendance among its employees due to the prevailing illness. Then again there is the proof that the service which forms a part of the accident

prevention work, has formed an important part in the reduction of the number of accidents and their severity. As previously mentioned, prior to the organization of such service, the lost time accidents reached the rate of forty-five cases in one thousand employees per month but with accident and sickness prevention work, this rate was diminished with surprising rapidity to less than two per month, in 1922 there were only three cases involving a loss



Under the old regime, when accidents just "happened" and causes remained unstudied and uncorrected, the peak shown of 45 per thousand employees per month was typical; now the rate for both accident and sickness is less than two employees per thousand per month. The saving is enormous, and the cost inconsiderable, in view of the improved conditions.

which lists the items of analysis desired. Columns are provided for recording each day the number of cases charged against a particular item, distinction being made between the new and the re-visit cases. Such a record indicates the common causes of disabilities and aids materially in planning for their elimination.

In connection with her routine duties, the nurse makes a daily canvas of all departments to determine the absentees, and from the information secured, she compiles an absentee report, segregating the names of employees away from the plant, according to the cause of absence: (1) Sickness or unknown. (2) Vacation or leave of absence. (3) Part time or lack of work. A close follow-up is maintained over the cases appearing

of time during the entire period. Not only have the accident cases diminished in their number but the severity rate has also attained a low figure as shown by the following.

The number of days lost, per one thousand hours worked during the year are as follows: 1918, 1.936; 1919, .316; 1920, .055; 1921, .087; 1922, .013.

An investigation of the relationship between the number of sickness and accident cases treated in the plant hospital shows that for 1922, 55 per cent were sickness.

During the year 1922, with six hundred employees, the medical expenses amounted to \$286 per one hundred of pay roll. These expenses include salaries of plant physician and nurse, outside consultation fees, and medical supplies. If consideration is

given to the cost of the safety organization other experience has shown that the inspection service, bulletins, membership in the National Safety Council amount to \$.156 per one hundred dollars of pay roll.

These facilities and services have been found to be a profitable investment as the costs are small in comparison with the advantages secured. They have enabled the company to carry its own workmen's compensation insurance with considerable financial savings, at the same time providing better and more prompt attention to the needs of employees and their families. The employees and their families profit with the company through the steadiness on the job, and much suffering has been eliminated.

Many States are Educating Civilian Cripples

When in 1920 the federal government first embarked upon aid to state enterprise in taking care of and re-educating civilian cripples, only six states were engaged in that service. Under the stimulus of federal assistance thirty-four states are organized to avail themselves of this aid, and two more states have recently passed favorably upon it. On June 30, 1922, in thirty-one states the work was actually in operation. During the fiscal year 1920-1921 the states reported having handled 3,893 cases; during 1921-1922 17,089 cases were reported. It is estimated that at present organized care in the several states is provided for about fifteen thousand cases.

As federal appropriation to this service is provided for only up to July 1, 1924, the groups who are interested in the expansion of this work are uniting to urge Congress to continue the federal appropriations for this purpose.—*The Survey*.

Shape of the Hand in Various Occupations

Brezina and Lebzelter (*Archiv. f. Hyg.*, Vol. 92, p. 53) present a set of anthropometrical measurements of 1,200 workers belonging to different trades which indicate certain characteristic differences in the dimensions of the hand. The ratio of hand-breadth to hand-length is between 45.9 per cent and 46.9 per cent for blacksmiths, locksmiths, foundrymen, transport workers and bricklayers but falls to 43.8 per cent for employees of the postal-savings service and to 43.3 per cent for typesetters. The authors of course point out that such differences are no doubt largely due to

selection rather than to the influence of the occupation itself.

California Sterilization Law to Undergo Test

California laws provide for the sterilization of epileptics, habitual criminals, feeble-minded and incurable tuberculous persons, on discretion of the state prison board and the state board of medical examiners, but have not been enforced because of unwillingness on the part of authorized officials to assume the responsibility. A test in the supreme court of the state will soon be undertaken at the instance of Judge Robinson, who declares enforcement is demanded by the increase in subnormal persons, of whom there are 18,000 in state prisons, insane asylums, and schools for the feeble-minded.

A one-year course of training for nursing housekeepers is planned by the University of Saskatchewan in cooperation with the provincial Red Cross and the Graduate Nurses' Association. The course is to be established in such government-aided institutions as do not already offer a regular three-year nurses' course.

English Reports on Atmospheric Pollution

The eighth report of the Committee for the Investigation of Atmospheric Pollution contains systematic analyses of observations on atmospheric pollution from thirty experimental stations in different parts of Great Britain. Comparisons are made between the observations of the current year and for five year period preceding the report, and between summer and winter deposits. Photomicrographs of some typical specimens of impurity magnified up to two thousand diameters are given in the report and a useful bibliography is appended on the various methods of measuring dust. The report deals exclusively with measurement, not with mitigation.

Health Centers Needed for Indians

There should be health centers and visiting nurses on all Indian Reservations as there are elsewhere, urged Robert J. Hamilton, president of the business council of Blackfeet Indians on the occasion of the midwest conference on Indian Affairs held in Chicago, September 25 to 27, and the Indian girls themselves should be trained in health work to their own people. As Indian affairs are at

present administered, stated Mr. Hamilton, there is no efficient system of medical survey. Medical control should be under the control of the U. S. Public Health Service, not a function of the Bureau of Indian Affairs. Nowhere is reorganization more necessary than in the administration of Indian health. A group whose wealth amounts to sixty billion dollars, including oil land, timber, mineral wealth, and personal property, he said, should be able to command complete health protection.

Chicago Takes Census of Hard of Hearing

According to a study just completed by the University of Chicago, there are approximately seventeen thousand men and women in Chicago who are totally deaf. For six years the Chicago League for the Hard of Hearing has offered free employment service, education, and recreation to hundreds of these people. Mr. Frank H. Shepherd, formerly director of rehabilitation work in Oregon, has been appointed director to carry out plans for a greatly broadened program of activity in the interests of deafened persons in Chicago.

The Paris correspondent of the *Journal of the American Medical Association* writes that scandals growing out of medical service to war veterans have been so flagrant that a bill has been proposed in the Chamber of Deputies looking toward the creation of an Order of Physicians analogous to the previously established Order of Advocates.

The proponents of the bill contend that public interest demands that physicians be, by legal enactment, grouped together in an organized "medical corps," which shall be accorded the right to impose penalties on "undesirables" in the profession without waiting for scandals to become public. The impossible penalties range from a simple reprimand to permanent cancellation of the license to practice medicine. For each district over which the sphere of influence of a school of medicine extends, the bill will establish a regional medical council, to which offenders would have the right to appeal.

The state legislature of Michigan has passed a bill providing for the extension of Mother's Pension to families in which the father is suffering with tuberculosis to a degree that prevents his gainful employment.

Boston Visualizes House of Health

NOT content merely with maxims of health, the Boston Health Show exhibited as one of its most popular attractions the objective signs of hygienic practice as they evolve in daily home life. The first section, the Doctors' Office, showed cut-outs picturing doctor, and mother, and child. The rooms were equipped with stethoscope, forceps, basins, sponges and other paraphernalia. The lavatory was of the most approved type, a hospital bed neatly made, the scales, baby basket, and other articles suggest the proper routine for the child. The mother's needs were specifically anticipated by posters on the wall bearing the titles: "Your baby is sick and will need close watching." "Your baby is gaining splendidly." "What a lot of nice things you have ready for the baby." "These are the things you need ready for home care." "Examination shows the urine clear." "Your blood pressure is normal today, only 120." "Your blood pressure is 160. You must see the doctor at once." "Examination shows albumin in urine. See the doctor at once."

In the parents' bedroom the nurse is bringing the babe to its mother, who is in one of twin, four-poster beds drawn close to open window. Posters serve to convey the information that the infant sleeps alone, that it is breast-fed, and that in regularity of habit lies the mother's comfort and the baby's safety. Even the matter of birth registra-

tion is urged in picture language.

The nursery was fitted with sleeping basket, woolen sweater and brown sleeping bag; enamel table, with bathing accessories; pitcher and towel; absorbent cotton in glass receptacle; powder in shaker; soap, towels, and clothing properly arranged for use. In the center was a portable rubber bath tub, and on the side stand a round enamel receptacle for soiled clothes, and an enamel "baby's toilet." A thermometer silently pleads for attention to temperatures, and the usual insistence upon milk as food, cleanliness, and medical supervision was made.



Two metal beds were in the children's sleeping room. The bureau with mirror, the vase with flowers, and the candlestick gave the air of simplicity and beauty the place demands, and other appurtenances emphasized going to bed at seven, sleeping alone, and keeping windows open.

In the bathroom a child brushed its teeth. Wash cloths, soap, and other conveniences were at hand, and the usual admonition to cleanliness was carried in the "Take a bath oftener than once a week."

The kitchen carried a legend all the way around urging vegetables in the diet, long cooking of cereals, and the day's food supply with adequate proportions of the various ingredients was shown in the portable kitchen cabinet.

The dining room, in which two children were eating, was clean and attractive with shining dishes, immaculate linen, fruit on board, and the time schedule for meals.

The living room was fitted up with library table, with books and magazines, sewing basket, basket with pine, and candlestick with candle.

The playground was fitted with games, a hobby horse, a swing, knotted for climbing, a child's table with dishes, and on the left was a garden plot with tools for children to do their own planting.

The whole exhibit was exceptionally well thought out, the equipment adequate and practicable, and the lesson of health well taught throughout.



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Editorials

THE FIRST city laboratories in the United States were established at Providence in 1888 and at Ann Arbor in 1889; but it was the creation of the laboratory of the New York City

Health Department in 1892 which furnished the main impetus to the development of public health laboratory service upon this continent.

The Public Health Laboratory

Under the inspiration of the late Dr. Biggs, and with the aid of E. K. Dunham and W. H. Park the new methods of diagnosing diphtheria and tuberculosis were introduced at New York and with so much success that the laboratory over which Dr. Park still presides now employs a staff of over two hundred and makes over 150,000 diagnostic examinations for diphtheria alone in the course of a year.

The recent report of the Committee on Health Practice of the American Public Health Association shows that every one of the eighty-three large city health departments of the United States has laboratory facilities at its disposal and that in forty-three cities full time directors of laboratory service are employed at salaries ranging from \$1,500 to \$6,500. In a group of sixty-four cities, for which full data are available an average of eighty-five examinations were performed per thousand persons in the population, at a cost of four cents per capita.¹

A most encouraging feature in the development of public health laboratory service in America has been the emphasis placed on research. The Massachusetts and New York State laboratories and the New York City laboratories, as outstanding examples, produce a volume and quality of research dealing with fundamental problems which compares favorably with the output of the best University departments; and an article in the present issue of THE NATION'S HEALTH² shows how general is this tendency and how fruitful in results.

The laboratory exerts a subtle and far-reaching influence on all the activities of the health department. The work of the sanitary inspector and the nurse in the field and of the physician in his clinic is constantly checked up at one point or an-

1. Bulletin 135, U. S. Public Health Service.
2. Hiscok, Ira V., and Shannhessy, Howard J.: Recent Progress in Public Health Laboratories, p. —.

other by the rigorous methods of laboratory research, which, with the equally exacting work of the statistician, furnish the controlling force behind the whole health program. In accord with findings of bacteriology and vital statistics our whole campaign must be directed; and its successes in the future, as in the past, will depend upon the extent to which these two basic sciences are fostered and developed.

WHILE one can hardly question that the Schick test has been useful in convincing parents of the need of prophylaxis in those of their children who show positive reactions there is considerable doubt as to

Schick Test or Toxin Antitoxin

whether we have not laid too much stress upon the test and too little upon active immunization. For after all the test will not prevent diphtheria and the results show that in many instances it has merely served to gratify the curiosity of parents. It is no uncommon experience among those doing this work to have parents consent to the test but refuse immunization for positively reacting children.

Granting that the test does induce some parents to consent to active immunization, its effect upon physicians can hardly be anything but a deterrent. Most of the literature extant gives the impression that the Schick test is a necessary preliminary to the use of toxin-antitoxin. The minutiae of the test are recounted, the necessity of accuracy at every stage is insisted upon—the dilution, the intradermal injection, the control injection, the readings of the true, the false, and the combined reactions are described at length, while the simple undramatic but really essential thing is lost to sight amid this maze of technical detail.

Few physicians reading this material are inspired to promote the use of toxin-antitoxin in their private practice and many physicians engaged in health and school work are discouraged from its use by the belief that a preliminary Schick test is necessary. While a preliminary test may be advantageous among children of the higher grades whenever school immunization is to be done, or even in the lower grades of metropolitan schools or those in which diphtheria has been prevalent, or among children from the tenements, or those in institutions, it is not improbable that elsewhere preliminary Schick testing or even mention of it retards rather than accelerates the prevention of diphtheria.

From 50 to 60 per cent of diphtheria deaths oc-

cur among children under five years of age and an additional 25 per cent occur between five and nine. More than half the cases also occur in these two age groups. Children of these ages seldom suffer unpleasant reactions from toxinantitoxin and, except among the classes mentioned above, from 75 to 95 per cent of them react positively to the Schick test in any event. For every one hundred children tested and immunized there must be given from 425 to 485 injections as against but 300 if immunization alone is employed. The latter is simpler, safe and of universal applicability. If the children in the lower age groups can be immunized we can well afford to neglect temporarily those in the higher ones. The death rate in the latter is low, severe reactions from the toxin antitoxin are much more apt to occur, which deter the parents from permitting the immunization of younger children. If we keep tearing at the roots the top will die in any case.

AT LEAST one-eighth of the population of the United States are driving motor cars. Theoretically, each of these drivers is licensed by some legal body. Thirteen million automobiles

A New Public Health Field

are traversing our roads and, where the population is most congested, are passing through streets crowded with human beings. In the city of Chicago alone, more than 300,000 persons are driving what are practically gasoline locomotives, machines of such power and speed as to render them grave health hazards unless they are controlled with accuracy, judgment and a keen sense of responsibility. Even when driven with great prudence, they are potentially dangerous because even the most skillful and careful driver is not always safe from the irresponsible pedestrian. Thus, through reckless driving and careless walking, the death-toll is increasing daily in spite of greatly improved traffic regulation and more rigorous punishment of those drivers whose machines are killing and maiming human beings.

If each day as many people in the United States died from bubonic plague as are killed by automobiles, the entire profession of public health would be stirred to righteous combat with the pestilence. Is it not the duty of the health guardians of the general public to attack any condition which endangers the life and efficiency of man? Is not the prevention of death by automobiles as properly a health department function as the prevention of death from infection? It would seem that it is.

The law can do its part in punishing infractors of the traffic regulations; the press may indoctrinate prudence in both driver and pedestrian; it is the duty of the health officials to prevent the epileptic, the deaf, and the moron from sitting at the steering wheel. No person with a serious heart lesion or a very high blood pressure should be given a driver's license, any more than should the drug addict, the chronic alcoholic, or the individual whose equilibration and coordination are not normal. It is just as important that the automobile driver have safe visual and color sense as it is that the locomotive engineer shall be physically and mentally at par with his responsibilities. A railway company which did not enforce physical, mental and moral factors of safety in selecting its engine drivers would be criminally negligent. In neglecting these simple but important factors of safety with respect to automobile drivers is not the general public guilty of contributory negligence? In other words, would not the medical examination of applicants for automobile driver's licenses and the periodic re-examination of all holders of such licenses bring about a certain reduction in the automobile death rate?

An automobile is an instrument of high power and great precision which none but the physically and mentally safe should be permitted to use, yet men with one arm or one leg or one eye receive licenses and the daily record of automobile accidents set forth in the public prints leads to the belief that many drivers are mentally defective. The primary idea of requiring a license is revenue production to which that of public protection is entirely secondary. The aim should be to license only those who are fit to be entrusted with a machine whose death dealing potentialities are so great.

Some of the larger and more progressive taxicab companies require the successful passing of a medical examination as a preliminary to employment. Is it not a public health function of the community, to impose similar restrictions upon every person who is to drive any motor vehicle?

The production of passenger cars and automobile trucks is increasing at the rate of about 40 per cent per annum. It is reasonable to suppose that the number of drivers is increasing at about the same rate. It seems that here is offered a proper field of health endeavor. To be sure, the medical examination of chauffeurs will not be a panacea against the wave of slaughter by automobiles; it will not be "fool-proof"; it will be a

fairly coarse sieve but it will discourage the person who knows he is not physically fit from applying for a driver's license and it will be the means of removing from the driver's seat, a good many people who are physically, mentally and emotionally irresponsible and who consequently menace human health when entrusted with the operation of motor vehicles.

A VALUABLE recent study on venereal diseases in Czecho-Slovakia¹ indicates that the new cases treated by the physicians of that country for venereal diseases in a year amount to about

Burden of Venereal Diseases

0.6 per cent of the total population, somewhat less than one-third being cases of syphilis. The estimate is based on a questionnaire addressed to individual physicians

and by comparison with the results of the American draft examination, the figures seem to be very low; but the attempt to obtain some real measure of the prevalence of gonorrhea and syphilis is a highly creditable one. It seems probable that the soundest basis for an approximate estimate of the prevalence of venereal disease is to be found in the results of our own draft examination as applied to the second million drafted men. These findings indicated that about 1.05 per cent of the new recruits were suffering from syphilis and 4.62 per cent from other venereal diseases at the time of examination.

We may assume on the basis of these draft studies that at a given moment about one per cent of the young male population is infected with syphilis and nearly five per cent with gonorrhea. We know from numerous series of Wassermann tests conducted on various miscellaneous groups that the total proportion of males affected with syphilis at one time or another rises to between five and ten per cent, five times the result obtained by medical examination at a given moment. We have no simple test for past or latent infection with the *Gonococcus*; but the question naturally arises whether a similar ratio between active disease incidence at a given moment and past infections may not be postulated for the two diseases. We see no very valid reason why such a relation should not exist in view of the ease with which gonorrhea assumes a latent form. If the assumption be a valid one, that is, the assumption that past latent infection in the case of gonorrhea is five times as common as active disease at a given moment, we arrive at the startling conclusion that

1. See review on page 789 of the November, 1922, NATION'S HEALTH.

1. See review on page 789, November NATION'S HEALTH.

at least twenty-five per cent of the male population at one time or another becomes infected with venereal disease. The rates reported by Dr. Pelc in Czechoslovakia were about one-fourth as high for women as for men.

Such conclusions as these must necessarily be very tentative and we invite further discussion of the subject in the columns of *THE NATION'S HEALTH*. It seems time, however, that we should begin to attempt a serious evaluation of the extent of the burden imposed upon society by these communicable and preventable diseases.

THE most striking characteristic of the modern public health movement is the gradual replacement of environmental sanitation by personal hygiene as our central objective. It is particularly interesting to

see how this general tendency has worked itself out in the special field of bathing-pool supervision.

For years past we have been striving to maintain the purity of the water in bathing pools by filtration and chlorination; and this effort is a sound and desirable one. The argument as to the need for such protective measures has been largely based on the evidence of various medical authorities to the effect that infections of the ears and of the nose and throat are commonly noted after bathing in such pools. That such a correlation is in many instances reasonably definite we may perhaps grant; and naturally enough it was at first assumed that the increase in such disorders was directly due to bacterial infection transmitted from one bather to another.

Now comes a new suggestion, that the cases of disease developing after the use of a bathing pool may in many instances be due, not to new infection, but to the lighting up of latent or potential infections already present as a result of the lowering of vitality following undue exposure to the chill of the water. The exact relative weight of various factors remains for the future to determine. We shall do well to keep the water of bathing pools free from pollution as heretofore. On the other hand, the experience already obtained as to the value of direct protection of the ears by special caps or oiled plugs and, above all, as to the control of subsequent illness which can be obtained by limiting the time for which a given individual may remain in the water, makes it clear that in this field of public health as in others personal hygiene is quite as important as environmental sanitation.

WORKMEN'S compensation laws in the United States date from 1911. The original acts have been frequently modified, usually in order to increase the benefits accruing to the workmen.

Medical Compensation Problems

The medical profession figures prominently in the laws and their medical aspect is an important one. The National Industrial Conference

Board has recently published a report which discusses this question at length. One of the most striking omissions in many states is the failure to provide any medical advisor to the industrial accident board or medical member on the board. Of the forty-two states in which Workmen's Compensation acts are in force "fifteen states have a physician attached to the industrial board or commission in the capacity of medical director or medical advisor."¹

One of the most important functions of the industrial accident board or commission in cases of accident is to decide disputes between employee and insurer. These disputes deal almost entirely with questions involving the severity of the accident and the actual period of disability. Medical testimony is always submitted in these cases by both sides and the decision frequently requires a careful weighing of the medical evidence thus presented. It is obvious that only a physician, and one of broad experience, is able to evaluate and assign the proper weight to evidence of this type, and that the commission or commissioner before whom the case is tried, in many cases cannot correctly judge the medical evidence presented. It would seem reasonable that at every hearing before an industrial accident board or commissioner a physician should sit with the board or commissioner, whose business it would be to follow the medical evidence closely and review it in an impartial manner at the end of the hearing. This would eliminate the ridiculous possibilities which are frequently offered by both sides of the controversy. Such a medical advisor should, of course, be carefully selected for his professional judgment and his standing in the community.

Inasmuch as decisions are constantly being handed down by industrial accident boards and commissions which stand as precedents and are followed in later cases, it is of the greatest importance that these decisions should be based upon a thorough understanding of the medical aspects involved.

1. Workmen's Compensation Acts of the United States, Research Report, No. 61, National Industrial Conference Board, New York.

Serum-Free Solutions of Antibodies

Preparation and Therapeutic Value of Such Preparations in the Treatment of Pneumonia

THE increasing use of animal immune sera in the treatment of various infections of man lends timeliness to any attempt directed toward the refinement and improvement of methods of preparation and administration of such therapeutic agents.

It has long been recognized that the antibodies responsible for the beneficial results of immune serum therapy constituted but an infinitesimal part of the material introduced into the system of the patient. Along with these products it has been necessary to inject large amounts of substances that are either wholly useless or in many instances even produce dangerous reactions. From these statements it follows that antibody solutions free from serum proteins would represent a distinct advance in serum therapy, and this much desired goal has been attained by Dr. F. M. Hüntoon.¹

The object of the investigations which have been so successful was "to determine the possibility of the production of serum-free solutions containing sufficient antibody to permit of their use therapeutically in the treatment of lobar pneumonia." The pneumococcus antibody solutions so prepared are multivalent, giving protection against pneumococcus infections of Types I, II, and III. The preparations "are water-clear solutions containing antibody in approximately the same proportion as serum, but containing only a trace of horse serum, detectable by biologic but not by chemical means, a small amount of bacterial proteins, 0.85 per cent sodium chlorid, and 0.25 per cent sodium bicarbonate." Clinical experimentation has indicated that there are distinct advantages attached to the use of this serum-free antibody solution.

The purification of antibody is a highly technical problem. It may be attempted either by direct or indirect methods. By the direct method is meant the precipitation of the antibody and the redissolving of this precipitate. Such a method must, however, fail to give a pure product for all known method of precipitating the antibody also bring down certain

other serum constituents which it is not possible to separate from the antibody. Hence purification of antibody by the direct method is but partial.

Indirect methods of purification may be either by direct adsorption, indirect adsorption, or absorption, and depend on the use of some substance with which the antibody combines. After this combination has been separated from the major portion of the other serum constituents the antibody is removed from its attachment. Hüntoon's serum-free antibody solutions are prepared by this latter, the indirect method.

A true reversal of the antigen-antibody reaction has never been demonstrated for it has never been shown that all of the antibody was recovered. It is, however, possible to secure a partial dissociation of the antigen-antibody combination and by this method Hüntoon has secured the pneumococcus antibody solution already described. The amount of antibody remaining attached to the antigen after such dissociation is always somewhat more than the minimal sensitizing dose. From this dissociation of the antibody in excess from its combination with antigen arises the assumption that there is a graduated variability in the firmness of the union between these two substances and that those antibodies less firmly attached are the first to be dissociated.

Briefly the preparation of the antibody solution is as follows: At regular intervals horses are injected with emulsions of Types I, II, and III pneumococci. After a number of such injections the horses' serum is found to contain protective antibodies. It is easy to obtain in this manner a serum that will protect mice against one million or more lethal doses of Type I. To obtain as high a protective power against Type II is much more difficult and only rarely can a serum be produced that protects against more than 100,000 fatal doses of Type III.

An equal volume of a heavy emulsion of living pneumococci of Types I, II, and III is added to the immune serum and the mixture maintained at 37° C. for one hour or at 20° C. for twelve hours. During this period the antibody combines with the antigen. Following this reaction period the mixture is centrifuged; throwing down

the pneumococci and the attached antibody. Washing with salt solution rid's this sediment of horse serum.

At this stage in the process of preparation the intermediate product consists of a combination of antibody and antigen having only traces of horse serum remaining. After this sediment is emulsified in salt solution containing 0.25 per cent of sodium bicarbonate the temperature is raised to 55 degrees C. and there maintained for thirty to sixty minutes. In the presence of this salt solution and at this temperature the antigen-antibody reaction undergoes partial reversal and much of the antibody separates from the antigen (pneumococci). Centrifuging this mixture throws down the pneumococci to which part of the antibody is still combined, but the supernatant liquid contains a large amount of antibody. This liquid is removed and chilled, then recentrifuged and filtered through a filter candle. This aqueous solution of antibody contains but a small amount of bacterial proteins, 0.85 per cent sodium chlorid and 0.25 per cent sodium bicarbonate. The nitrogen content per cubic centimeter, is but 0.035 mg. The fact that the antibody content of this solution is approximately equal to the immune serum from which it was prepared is shown by the fact that many lots of the product are able to protect mice against as many fatal doses of pneumococci, Types I, II, and III, as was the original serum.

"The preparation is therefore a practically serum-free, aqueous solution of specific pneumococcus antibodies. It contains protective substances against pneumococcus Types I, II, and III equal in amount to potent polyvalent antipneumococcus serum, yet is almost entirely free from the proteins of horse serum. It also contains in addition to antibody, a small amount of pneumococcus protein which may conceivably act in the capacity of a vaccine and thereby induce a certain amount of active immunity."

Clinical experiments with this type of antibody solution have included more than six hundred cases. In a series of 114 cases treated by Dr. Lewis A. Conner at the New York Hospital which included pneumococcus pneumonias and those caused by

1. Antibody Studies, Jour. of Immunology, March, 1921, vi, 2, 117. (a) Reversal of the Antigen-Antibody Reaction, F. M. Hüntoon. (b) The recovery of Antibody from Sensitized Antigens: Technique, F. M. Hüntoon and S. Etris. (c) The Chemical Nature of Antibody, F. M. Hüntoon, P. Masucci, and E. Hannum.

other organisms, the total mortality was 14.6 per cent or 8 per cent below the lowest previous record in the hospital and 16 per cent below the usual rate.

Dr. Russell L. Cecil and Dr. Nils P. Larsen² have also used this product. In six wards all cases of lobar pneumonia were treated with the antibody solution. Six other wards were used for a control. Treatment was started immediately following diagnosis. In the majority of cases administration was intravenous. Reactions following the injections are rather unusual. "From twenty to forty minutes after the injection, the patient begins to shiver and is soon in the midst of a hard chill. The cyanosis and dyspnea becomes more marked, and the patient often shows extreme anxiety. The chill may last from fifteen to twenty minutes. At its conclusion the patient complains of fever, and the temperature may have risen to 106 F. or even to 108 or 109. In rare cases the temperature may rise to 110. In one case the rectal temperature was too high to be recorded on the thermometer. When the thermometer was removed, the bulb was missing, and a careful reading of the mercury column recorded 113.10. The patient was wildly delirious during this period of hyperpyrexia, but ice packs were followed by a rapid drop, and on the next morning he showed a normal temperature and made an uncomplicated recovery." Later study of subcutaneous administration shows that by this procedure the severe and uncomfortable reactions are entirely avoided.

The following table, prepared by Cecil, shows the death rates in the treated and control series.

Cases Treated with Antibody			(Control Cases)			
Pn.	Type	Deaths	Pct.	Cases	Deaths	Pct.
Pn. I..	157	21	13.4	175	41	23.4
Pn. II..	78	22	28.2	76	31	40.7
Pn. III..	57	20	35.0	60	24	40.0
Pn. IV..	109	17	15.6	137	31	22.8
Total..	401	80	19.9	448	127	28.3

From this table it is seen that the antibody solution gives the most striking effect in cases of pneumococcus

Type I pneumonia, while there is a noticeable but less marked reduction in the fatality rates for Types II and III.³ The marked improvement in the fatality of Type IV cases is rather surprising since the antibody solution is not sup-

Cases Treated with Antibody			Control Cases		
Pn.	Type	Deaths	Pn.	Type	Deaths
I..	56	5	8.9	68	16
II..	24	5	20.8	25	8
III..	10	1	10.0	19	7
Total..	90	11	12.2	112	31
Pn. IV..	24	4	16.6	45	11
Total..	114	15	13.1	157	42



Pasteur and his Grandson. From a photograph presented by the grandson, Pasteur Vallery-Radot, to Dr. M. J. Rosenau.

PASTEUR, who this year has been chosen as the greatest Frenchman, is everywhere hailed as the patron saint of preventive medicine. Not by dint of mere discovery through observational method, but chiefly through his power to visualize the ultimate application of laboratory findings were the foundations laid by Pasteur for present practice in active immunization. The story is old of his work on anthrax, of his attenuated cultures of chicken cholera making hens refractory or immune to this disease, and of the first preventive treatment of rabies in a human on the Alsatian boy, Joseph Meister, but the dramatic salvage of human life through the principles so evolved is an everyday occurrence in health work.

Chemists must regard Pasteur as having shown the open road to truth through experimental evidence. With the discovery of bacterial habit, bacteria themselves were turned to beneficent uses and specific prevention of diseases ushered in the era of preventive medicine.

posed to offer any protection against this type of infection. There is considerable evidence that Type IV is composed of aberrant forms of Types I, II, and III. If this hypothesis is correct the beneficial effect on the antibody solution on Type IV pneumonias can be explained.

The following table,⁴ also from Cecil's work, shows the more marked effect of antibody solution when it is

administered on or before the third day of the disease. The control shows the deaths among cases admitted to the control wards on or before the third day of the disease.

From this it is seen that the mortality from all four types was reduced one-half when treatment was instituted in the first days of the disease.

The dose used was from 50 to 100 c.c., given once or twice a day, and occasionally three times.

It must be concluded from these results that this antibody solution is of considerable value in the treatment of pneumococcus pneumonias. There is no danger of anaphylactic shock and it now appears that subcutaneous injection will avoid the chill and fever that accompanies intravenous administration.

In the preparation of the antibody solution Huttoon has investigated the nature of the antigen-antibody reaction; the possibility of reversing the reaction; the technic of recovering antibody from sensitized antigens; and the chemical nature of the antibody, technical problems of immunology that have long needed study.

He has recovered a large part of the antibody from sensitized antigens and studied the agents and factors that influence the degree of such dissociation. As a result there is now available a serum-free solution of antibodies that are very effective

in the treatment of lobar pneumonia. From his study of the chemistry of the problem Huttoon concludes that antibodies do not belong to that group of proteins usually considered under the head of serum proteins." Even such a negative conclusion as this is of value in limiting the field of investigation in relation to the nature and action of antibodies.

2. Clinical and Bacteriological Study of One Thousand Cases of Lobar Pneumonia, Russell L. Cecil and Nils P. Larsen, Jour. Am. Med. Assn., July, 1922, lxxix.

3. Pneumococcus Antibody Solutions Specific Against Types I, II, and III, F. M. Huttoon, Trans. Section of Path. and Physiol. of the A. M. A., 1922.

4. The Treatment of Lobar Pneumonia with Pneumococcus Antibody Solution, Russell L. Cecil, Weekly Roster and Medical Digest, March 24, 1923.

The Toledo Municipal Hospital Clinic

MORE properly than other services does the control of venereal disease come within the province of municipal health machinery. The Toledo Municipal Hospital Clinic, is a notable example of a health service

facilities designed at the beginning as an emergency organization for venereal control during the war, have since been expanded to permit the care of communicable diseases other than venereal, but the venereal control

room are grouped smaller rooms used as treatment room and wards for the segregation of the more acutely ill patients or the younger patients. Future plans involve an expansion that will permit the detention of all police charges in the hospital. The remodeled hospital building will soon be ready for occupancy.

The channels through which patients are received are many and various. In handling prostitutes the clinic cooperates with the police department and with the sanitary police of the department of health. These cases are confined for the full period of their infectiousness. Other cases reach the clinic by reference from hospitals where accommodation is not available. Such charitable organizations are fruitful sources and the district nurses, the tuberculosis dispensaries, and home for girls.

Public school nurses and outside physicians refer indigent patients to the clinic. But by far the greater number of the patients are voluntary applicants, especially the male patients. Those who are able to pay outside physicians are directed to proper outside channels for treatment.

The clinic is open every day except Sunday. On Wednesday the entire staff is devoted to the administration of intravenous treatments, on which day no new admissions are received. In every case, from whatever source,



Venereal Clinic, Municipal Hospital, Toledo, O. Cooperation and collaboration with the private physician are maintained at all times.

operating primarily on the basis of a police power making communicable diseases subject to report and quarantine. The activity is under the control of the welfare department and is supported by the budget of that department. It bears no relation to the state health department or the United States Public Health Service, other than to render monthly reports to those bodies. The policies of the clinic are entirely controlled by the city government.

The clinic is in charge of a director, who is responsible for the three departments: (1) Urological, (2) nursing, and (3) clerical. The urological staff consists of the director, who is chief urologist, consultant, and adviser in all cases; the assistant director, who has charge of the female service, and two assistants urologists. The nursing staff consists of the head nurse, who is also superintendent of the hospital, eight full time, graduate nurses, and two male nurses. The clerical force includes a full time social worker, a stenographer, and a statistical clerk.

Describing the scope of the work, Dr. Earl W. Hufer, in the *American Journal of Syphilis*, states that its

clinic is still the *raison d'être* for its existence. The ground floor is occupied by the executive offices, the clinic for men, a small instrument room, and a small and at present inadequate operating room. There are two large, widely separated, wards on this floor, one for men and one for women. Thirty-eight beds are available in the hospital, and the overflow on the female side is accommodated in the detention home. The second floor is devoted to the clinic for women. Around the large waiting



Shows arrangement and fittings of small laboratory in male clinic.



Endoscopy and cystoscopy room.

a complete social history is developed by the social worker to supplement the clinical history. The clinical record card combines simplicity with sufficient detail and the daily recording system affords ample data for the required monthly reports to the state department of health.

The expansion of the influence of the clinic is indicated by the increase in the number of ambulatory patients treated from 7,653 over the period from July 7, 1918 to August 15, 1919, to 27,110 covering the period from January 1, 1921 to December 31, 1921. Interned patients treated increased for

similar periods from 201 to 949. A very tangible evidence of the actual results being accomplished is shown by the annual report which says: "We have taken care of 621 police cases—only 31 per cent of them were infected—while in 1919, out of fifty-two girls taken in one raid, only one was not infected." The statements is added that prostitutes in Toledo are the least source of danger under current management. The greatest source of danger lies in the unknown, who do not come under the observation of the police. Early detection is the price of safety.

Hope for Heart Cripples

THE Association for the Prevention and Relief of Heart Disease has recently published its second report covering the period from January, 1921 to December, 1922.

In order to show the magnitude of the problem against which the efforts of the association are directed, figures are quoted showing that the rejections on account of heart disease among men of military age during the war was 42.3 per 1,000; this figure including those rejected by the local boards and in addition those rejected on a second examination at an army camp. Records of rejections by a large insurance company were 24.4 per 1,000 in spite of the fact that persons with the more obvious forms of heart defect are not apt to apply for insurance. In addition it must be remembered that probably some good risks with but a slight defect were accepted. The city health department of New York has found that 16 per 1,000 of the school children have heart defects.

The association has organized forty-three special clinics in the hospitals of

New York City, devoted to the exclusive care of those suffering from heart disease, and has established fifteen segregated classes for children in cooperation with the Board of Education, the Public Education association, and seven cardiac clinics.

With the help of the educational authorities and the Children's Aid Society has organized and supervises a trade school for cardiac girls. It has obtained the cooperation of the fresh air organization in obtaining summer outings for cardiacs; and secures the admission of cardiacs to convalescent institutions.

It has conducted studies of children refused working papers on account of heart defects; of suitable occupations for persons handicapped with heart disease; and of the facilities available for the care of chronic heart disease in New York City.

The central office of the association serves to coordinate all medical and social organization interested in the problems of cardiacs. It prints and distributes educational literature on all phases of the heart problem and has given assistance and advice in the formation of associations and clinics for the care of heart patients in 26 other cities on the continent. A movement has been started recently for the formation of a national group to organize the work on a country-wide basis.

Laws substantially conforming to the uniform illegitimacy act adopted by the National Conference of Commissioners on Uniform State Laws, have been passed in Nevada, New Mexico, North Dakota and South Dakota.

Illinois has provided for a survey by the department of public welfare of the numbers, location, and types of children of school age specially handicapped physically, psychologically, or socially.

Iowa, Minnesota, and Ohio have passed laws relating to physical education in the public schools.



Exercise is not denied the little heart cripples who are under special management in the Mineola Home, New York, but suitable adaptations are made and the children encouraged to maintain what is, for them, normal activity.

Society Needs the Centenarian Groups

THE picture of The Centenarian Club of Los Angeles, Calif., which is shown on this page, is only a part of the story of this young-old group who are all old in years, but who without exception have retained their outside interests and have maintained a relatively wide range of activities. And the picture does not tell the whole story, for four persons present at the party were out of focus and so members of the club who are missing in the photograph include Dr. H. L. Canfield, age 95; Samuel Hedges, 94; Mrs. Maria Bailey, 95; and Mrs. S. H. Bliss, 91. The average age of the whole club is but slightly under ninety-four years and among them are men who do ten-mile sprints, women who do mountain climbing, and do their own housework. The men are all socially active, some of them in a business way as well.

The purpose of the club is that of friendliness and pure fun. Birthday parties are the rule, picnic dinners are frequent, and hikes are not uncommon, for a number of the members. The club ideally provides those interests and contacts the lack of which, according to G. Stanley Hall, account chiefly for the unhappiness of many persons in the older groups and especially for the peculiar detachment which to so great a degree serves to convert old age into a period of uselessness. "We suffer chiefly from unripeness," he says. "The human stock is not maturing as it should. Life is so complicated that the years of apprenticeship are ever longer and harder so that we are exhausted ere we become master workmen in our craft, and the rapid age turnover this

involves robs us of too many of the choicest fruits of experience."

Naturally, as a genetic psychologist, Hall in his study of "Senescence" discusses rather fully the mental hygiene of old age. Age itself may be regarded as the result of attitudes. We have the senescent period of earned repose, coming normally and as a welcome respite from pressures the physical organism is no longer resilient enough to welcome; but this is quite different from the enforced re-

range of activities. Psychoanalysts do not bother to study and treat persons past middle age, even though certain guidance during the climacteric of both sexes might well serve to teach the aging and aged to hold on to those very satisfying compensations that come after the painful renunciations of youthful pursuits.

The account Hall gives of his own readjustment to advance of years is very interesting. His retirement, a deliberate self-effacement after a life-

time of intensive and productive effort, brought him summarily face to face with a painful cessation of practically all his habitual functions. A hygienic survey of his physical assets brought to him the realization that physicians really know very little of old age, few having specialized in its distinctive needs. Thus the older a man is, the more he must rely upon his own hygienic



A picture of the Centenarian Club of Los Angeles, Calif., taken at the home of Silas Judd on his ninety-seventh birthday. The members are (first row seated, left to right): Mrs. Mary Chalker, age 91; Silas Judd, 97; Mrs. G. R. Pease, 95; Mrs. J. F. Howard, 97; Mrs. J. P. Vandergrift, 97. Second row: Sam Coles, 100; Mrs. E. M. Fletcher, 82; J. R. Alter, 82. Standing: General J. S. Wilcox, 99; M. H. Merriman, 94; J. M. Green, 91; Galusha M. Cole, 96; Joseph Sigle, 95.

tirements in industry at a period when men should be able to occupy themselves to the time limit of their productive capacity. The social attitude, which scorns the tempered judgment of matured minds, contributes toward the production of an untimely old age; but even that is not so deadly as such a narrowing of interests and such mental inflexibility on the part of the aged themselves as require an undue degree of tolerant consideration on the part of the younger generation.

Unfortunately, the mental hygiene of old age has been greatly neglected by the psychologists. There is not even a standard by which an intelligent man can measure himself to learn whether he is achieving safe and sane adjustments to his narrowing

sagacity for health and long life. The lives of the centenarians Hall studied convinced him that they owe their long life more to their own insight than to medical care and, he says, there seems to be far greater individual difference of needs than medicine has yet recognized.

Thus the aged are alone with a new kind of solitude and must pursue the rest of life in a more or less individual research as to how to keep well and at the top of condition. The specialists Hall consulted agreed that the older person must eat moderately, slowly, and oftener, and less at a time; must sleep regularly; cultivate the open air; exercise till fatigue comes and then promptly stop; be cheerful; avoid "nerves," worry, and

all excesses. But here agreement stops. One suggests change; one says Fletcherize; one says limit the diet; another says eat what you want; one suggests glandular extracts; another recommends youth-producing exercises.

The habit of living grows strong with years, and reasonable adjustments make the habit harder and harder to break. Now that the span of human life is lengthening, early death is not so much to be countered as the type of civilization that disregards the immense possibilities of productiveness on the part of highly trained persons whose necessary break with youth only serves to clear the deck for single track thinking and effective effort. The dangers of old age are a problem of the aged themselves; but the deliberate loss of ripe judgment, of mature activity, and of disinterested service—if disinterestedness is ever to be counted upon in service—are problems of a social nature open to serious consideration on the part of everyone.

On the mental hygiene of old age, the achievement of a philosophic acceptance of age and its inhibitions, Hall says that to learn that we are really old is a long, complex, and painful experience. Regarding the mental attitude toward age he addressed his inquiry toward two widely separated groups. The personal equation is great. All of the replies he received from persons in homes for the aged revealed pathos and pessimism galore. Disciplined tranquility and serenity were rare. Another list, all Americans, and all drawn from successful, even prominent groups, tend to be complacent and seem to look upon life as a whole as a triumph of virtue and have usually evolved a highly satisfactory basis of living. They have become more intensely individual and have managed to invest the same old self with a new set of attractive attributes and, while it is really impossible for youth fully to sympathize with age, or age with youth, enough of common ground is maintained for the social graces that are necessary to youth and age alike.

Connecticut Authorities Question Medical Degrees

Two members of the State Examining Board of the Connecticut Electric Association have been found to hold diplomas from the Kansas City College of Medicine and Surgery, the "diploma mill" which is accused of selling diplomas at from one hundred to five hundred dollars each and

"coaching" such graduates so that perfect and identical answers were made to examination questions prescribed in Connecticut. It is held that about two hundred "doctors" have been marketed in Connecticut.

Governor Templeton, acting quickly in the matter, has conferred with Dr. Stanley Osborn, head of the State Health Department, has commended the activities in this connection by State's Attorney Alcorn and is likely to request an extraordinary grand jury and a specially registered assistant to press conspiracy and perjury charges.

The Coal Tar Chemical Industry

Studies recently made of the technical group employed in the manufacture of coal tar products have several interesting aspects.

Of the 209 firms engaged in the industry, reports from 177 have been tabulated. About 23 per cent of the total of 1,757 men reported only 401 chemically and technically trained men received a wage of \$75 or more per week. This industry carries a larger proportion of technically trained men than any other manufacturing industry in the United States, and the total number of firms engaged in it has increased from 7 in 1914 to 209 in 1922.

Patent Remedies of Fearsome Compounds

The *Chemical Age* mentions a patent for a hair tonic which is composed of the oil of onions, cabbage and parsley, mixed with borax, sulphur, sugar of lead, ammonia, salt, alcohol, and bay rum. Still another patent for hair tonic about the time of the eighteenth amendment calls for a mixture of French vintages and other supposedly palatable ingredients. No wonder the nation is growing bald.

French Dentists Disagree

There is dissension among French dentists. Far too few in number to take care of the dental needs of the people, dentists have found their field usurped by empirics or even out and out charlatans, a condition which an attempt to control under the law of 1892 further complicated; for the requirement that "dentistry shall be practiced only by persons possessing a degree of doctor of medicine or a diploma as dental surgeon" introduced into the ranks of dentists a considerable proportion of physicians who oppose the separation of dental science

from medical and are arguing for a degree of "doctor of stomatologic medicine."

The desire of the dentists to authorize a "degree of doctor of dental surgery," to be followed by another degree of "doctorate of odontology" is opposed by the medical profession chiefly because they fear a flood of special doctorates that would eventually undermine the degree of doctor of medicine.

The increased interest in France in the care of the teeth is attributed by the Paris correspondent of the American Medical Association to the excellent mouth condition of American soldiers, and it is held that the dental care prescribed in the new military regulations in France will have the universal result of a more rational care of the teeth and will call for the reorganization of professional requirements to meet the new demand.

Lepers Lose Infirmary Building

Costs of construction having increased 20 per cent in Louisiana since last spring, when Congress provided \$650,000 for the construction of additional buildings at Carville, La., the building program is curtailed by eliminating the infirmary needed for treatment of the blind and the crippled. The seventeen cottages housing twelve lepers each, the dining room and kitchen unit, the necessary power plants, and water and sewage disposal units are being built.

Insurance Records in Employee Policy

A new record in the size of a single insurance policy was set when the Southern Pacific Railroad company took out a \$100,000,000 contract covering the ninety thousand employees of that railroad. The policy automatically insures the lives of all employees who have been with the road six months. The expense of this initial policy on the life of each employee is borne exclusively by the company, but the employee has the privilege of purchasing additional insurance up to a maximum of \$3,500 for those receiving a monthly wage of two hundred dollars or more, the additional insurance to be paid for jointly by the employee and the company under a contributory plan.

Professor George Chandler Whipple, who has for nine years represented the field of sanitary engineering on the Public Health Council of Massachusetts, has resigned this connection.

First Aid In Asphyxiation*



A handkerchief is not a gas mask. This has cost many lives.

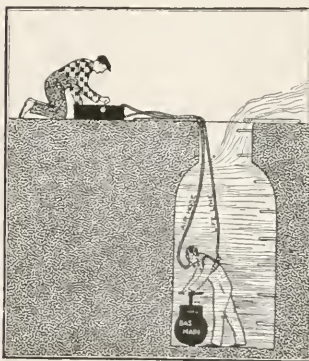
RULES for first aid and resuscitation in gas asphyxiation issued by the commission which has just completed its study of the subject under the auspices of the American Gas Association are just issued in the form of an illustrated booklet. The subject is concisely treated under the headings: (1) What carbon monoxid does. (2) Protect yourself. (3) Get the man out of gas. (4) Watch an unconscious man every minute. (5) When to give artificial respiration and when to give inhalation. (6) Artificial respiration by the prone pressure method. (7) How to take care of the patient. (8) General directions.

The reason that automobile exhaust gas, the gases from coal heating furnaces, the smoke from fires, producer gas, coke oven gas, blast furnace gas, carburetted water gas, coal gas and other manufactured gases are poisonous if actually breathed is that they all contain carbon monoxid. When carbon monoxid is breathed it combines with the blood, cuts off the oxygen supply, and the gas victim becomes asphyxiated just as if he were gradually being choked to death. As low as one-tenth of 1 per cent of carbon monoxid, or even less, will kill a

man in time; 1 per cent will kill in a few minutes.

If the patient does not die in the gas, but is removed to fresh air, the carbon monoxid leaves the blood in a few hours. The quicker it is breathed out of the blood, the better the chances of recovery. If the asphyxiation has not been too long or severe, and first aid treatment has been prompt and correct, recovery is complete.

The first word of warning from the Commission is, "Protect yourself." If the rescuer must go into gas or smoke, a mask and air hose or a gas mask with canister is to be worn. Particular emphasis is made that the mask must be especially made to stop carbon monoxid. The patient is to be moved immediately to a comfortably warm atmosphere that is free from gas, and artificial respiration by the



Air hose and mask, the best and safest apparatus when it can be used. A lifeline is essential under the conditions illustrated.

prone pressure method is to be resorted to at once if the patient is not breathing or if his breathing stops. A delay of a minute in such a case may be fatal. If the patient is breathing, he is to be laid in the first position for prone pressure resuscitation.

Artificial respiration is to be undertaken and pursued thoroughly even if the patient appears dead. As soon as the patient is clear of the gas quickly feel with your finger in his mouth and throat and remove any foreign body (tobacco, false teeth, etc.). If the mouth is tight shut, pay no more attention to it until later. Do not stop to loosen the patient's clothing, but immediately begin actual resuscitation. Every moment of delay is serious. Proceed as follows:

(1) Lay the patient on his belly,

one arm extended directly overhead, the other bent at elbow and with face to one side, resting on the hand or forearm, so that the nose and mouth are free for breathing.

(2) Kneel, straddling the patient's hips with knees just below the patient's hip bones or opening of pants pockets. Place the palms of your hands on the small of the back with the fingers over the ribs, the little finger just touching the lowest rib, the thumb alongside of the fingers; the tips of the fingers just out of sight.

(3) While counting one, two, and with arms held straight, swing forward slowly so that the weight of your body is gradually, but not violently, brought to bear upon the patient. This act should take from two to three seconds.

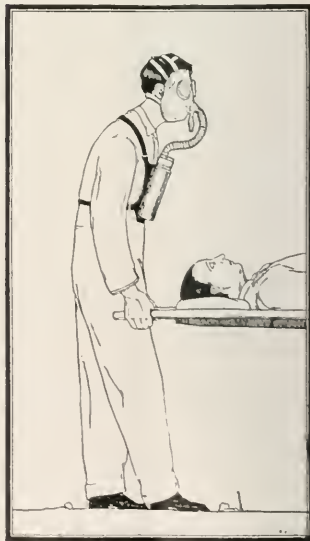
(4) While counting three, swing backward so as to remove the pressure.

(5) While counting four, five—rest.

(6) Repeat these operations, deliberately swinging forward and backward twelve to fifteen times a minute—a complete respiration in four or five seconds. Keep time with your own breathing.

(7) As soon as this artificial respiration has been started, and while it is being continued, an assistant should loosen any tight clothing about the patient's neck, chest, or waist. Keep the patient warm.

(8) Continue artificial respiration without interruption until natural breathing is restored, if necessary four hours or longer, or until a physician declares rigor mortis, (stiffening of the body) has set in. If natural breathing stops after being restored, use resuscitation again.



Gas mask and canister. Special chemicals are needed in the canister to absorb carbon monoxid.

*From the report of the Commission on Resuscitation from Gas Asphyxiation. Dr. Cecil K. Drinker, Chairman; Drs. Walter B. Cannon, David L. Edsall, Howard W. Haggard, Lawrence J. Henderson, Vandell Henderson, Francis W. Penbody, Royd R. Sayers, and Charles B. Scott, members.

A man who has been even slightly gassed should not be allowed to make any exertion. Keep him lying down. If he must be moved, carry him. The worst thing that can be done is to get him up and walk him around—as is sometimes done. It may injure his heart or even kill him.

When a gassed patient is breathing he should not be given artificial respiration; but he should be placed and kept in position ready for artificial respiration in case he stops breathing. If the patient is not breathing,

artificial respiration by the prone pressure method described is called for at once. This is the best method for artificial respiration. It is better than any method using a mechanical device. If the victim is breathing, an artificial respiration apparatus may injure him. If he is not breathing, he may die while the apparatus is being secured or while it is being put in order for use.

Oxygen inhalation used properly helps to drive the carbon monoxid from the blood. To do any consider-

able good the oxygen must be given during the first two hours after the man is out of the gas. It is recommended by the report that about 5 per cent of carbon monoxid be mixed with the oxygen inhaled as this makes the patient breathe more deeply and thus allows the oxygen to drive the carbon monoxid out of the blood. The report closes with specific directions for the care of the patient and for administering the inhalation treatment.

Interconnection of Water Supplies

INSURANCE rates for a factory or manufacturing plant having a large fire risk are largely governed by the supply of water available for fire protection. Insurance companies properly require that there be installed on large and valuable properties an independent water supply either to duplicate or supplement the public supply, or the insurance rates are accordingly raised.

In attempting to comply with the underwriters requirements at the least expense the owners of factories often find themselves in conflict with the health authorities; particularly when they resort to interconnections of public and polluted private supplies.

Since chlorination and filtration of water and the purification of sewage have become so general in urban districts typhoid fever epidemics have notably decreased. At the same time a larger percentage of the epidemics occurring are attributable to what were once considered the more unusual sources of pollution, particularly cross connections between public and private industrial water supplies.

Thorndike Saville has said, in considering the question of whether or not water for private fire supplies should be permitted under any conditions to be taken from a polluted source: "Protection from conflagration is just as important to the public welfare as is protection from disease, and all public officials should recognize that these two factors are interrelated. Nor is it entirely proper to weigh out the evidence in terms of statistics and probabilities. It may be claimed that the chances of death from disease from interconnection are vastly less than the chances of death from fire without interconnection. The answer *should* be that if absolute separation of public and private sources is reasonable, and will afford

adequate fire protection, then the chance of disease from interconnection of supplies is too great to be taken, no matter how remote it may be.

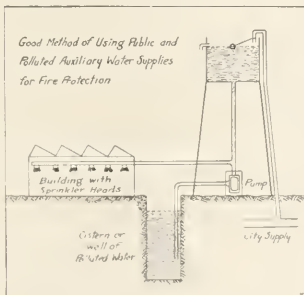
"This is the only logical standpoint, and is to be set up as an ideal. In practice, we often do not live up to ideals, and frequently our processes

overflow by a connection from the city main. Such tank or standpipe may then be connected to the fire protection system.

"Third. Two independent systems of piping without any connection whatsoever, one being supplied from the city mains and the other from the independent water supply.

"The Ohio State Board of Health has permitted cross connections between public and private water supplies with the use of double check valves, but has withheld approval of this method of procedure."

That dangers attend the use of double check valves is shown by the fact that in Hartford, Conn., since the installation of check valves in 1919, sixty-one instances of leakage through one valve and six instances of simultaneous leaking of both valves have been recorded. If such devices are in use there should be at least bi-weekly inspection tests but it is preferable to prohibit their use and adopt some such system as that shown in the accompanying illustration.



of reasoning are anything but logical."

It seems reasonable to allow the use of a private water supply when it is the most economical method of meeting the underwriters' and insurance requirements and is satisfactory taken, no matter how remote it may be, to the health authorities. The best solution of this problem is by interlocking regulations of the State Insurance Commission and the State Board of Health.

The Ohio State Board of Health has taken the attitude that any interconnection of a polluted private supply with the public water supply is potentially dangerous and that absolute safety can be secured only by the following methods:

"First. Construction of a pump well or reservoir to which the city mains are connected, pumps taking suction from well or reservoir and pumping to an elevated tank for storage and pressure.

"Second. An elevated tank or standpipe supplied at the top and above the

Correspondence Course for Nurses

The second year begins with a full quota of nurses taking the correspondence course in public health organized by the New York State Department of Health for the purpose of qualifying nurses employed in that state by county or municipal authorities who, after January 1, 1924, are required under law to have completed an approved course of public health instruction. The course is conducted by the University and Bellevue Medical College and is limited to 250 nurses.

The new Yale School of Nursing will receive its first student nurses in February, 1924.

Occupational Therapists Convene at Milwaukee

THE members of the Wisconsin Occupational Therapy Association acting as hosts, details were arranged which made for efficiency in the management of one of the most successful sections of the Milwaukee conventions. The program, a souvenir number of the official organ of the Wisconsin association, contained much valuable information about actual work being accomplished so that it was easy to cover the various phases of the work desired by visitors.

The report of the financial committee showed some discrepancy between the recommendations of extended work and its possibility under the present budgets, but organization was effected to secure additional funds to carry out an effective program through securing a full-time, paid assistant secretary. Membership in the organization now numbers 588 and inquiries on standards, installations, materials and methods have developed the need of correlated studies and information bulletins. Inquiries have been tabulated not only from members and hospitals about to establish occupational therapy departments, but from Canada, India, China, Japan, New Zealand, Holland, and Great Britain. The need for workers is so great that it has not been found possible to fix an efficiency limit even as to the number of patients it is possible for one worker to serve. The address of the president, Mr. Thomas Bessell Kidner, dealt in particular with the necessity for developing through organization activities a sane, national leadership.

Mentioning some directions in which such leadership is necessary, Mr. Kidner denounced particularly a strong tendency in many quarters to render the work purely commercial, that is, to produce in treatment by occupation, articles chosen primarily because of its ready sale. Success in occupational therapy is not to be measured by sales made, but by its specific adaptation to the patient involved and to its general effectiveness in restoring the patient's interest and powers. Outward and visible signs of occupational effort are therefore no real criterion of a properly functioning department. The hospitalization of a patient may be definitely shortened by occupational therapy, and this must be the measure of the economic efficiency of the department.

Mention was made of the great therapeutic possibilities in work with handicapped children, a field which has scarcely been touched. Particularly should occupational effort be made possible to cripples confined in their homes which would interest them while it afforded opportunity for vocational training and advice. While this service is equally applicable to adults, the possibilities through this means of developing the personality of the child, of educating him, and of giving him independence and self-respect have not been developed.

An important feature of the first day's session was a report on forms and records representing studies made by a committee headed by Dr.

Horatio M. Pollock of the New York State Hospital Commission.

The value of pre-industrial shops in rehabilitation received emphasis by Dr. Foley, Chicago, who declared that curative results in patients of the Chicago State Hospital are none the less positive because the activities represent useful and gainful occupations. This phase of the subject was further developed by Walter J. Hamilton of Chicago, the well known industrial and vocational counsellor on personnel. His message was that the occupational therapist cannot and should not remain detached from other agencies of rehabilitation outside of the hospital. Federal and state authorities in nearly forty states are now cooperating in the rehabilitation of disabled workers and citizens; the physician, the nurse, the occupational and physiotherapist, the vocational counsellor, social agencies, the official centers of rehabilitation, and employees must coordinate their efforts in order to be effective in this field.

A note of caution was sounded in the address of Major B. E. Hedding, who took for his topic: "Is it Occupational Therapy?" He argued for occupation only on prescription of the physician. Many activities have been undertaken with the tuberculous in the last twenty years, he said, but out of them only a few really serviceable occupations, although occupation must be considered the chief and best treatment.

R. K. Atkinson of the Russell Sage Foundation made an interesting con-



Members and guests of the American Occupational Therapy Association, which met for the second time in conjunction with the American trips of inspection and study of the large

tribution in recounting the mental reorganization that is possible through rhythmic work and music among insane patients. Everywhere improvement in the general mental and nervous condition accompanies the rise of interest and increase of skill in group exercise, folk dances, and similar activities.

Curative work as an integral part of hospital treatment in industrial service as employed by the French and Early institution in Los Angeles was discussed by Mr. C. J. Glasser. He mentioned especially that neurosis, formerly so common with them in back injuries, are under a system of directed occupation entirely lacking.

Immediately at the close of the morning session the members journeyed out to Wauwatosa, where they were the guests of the county authorities at luncheon in the dining hall of Muirdale Sanatorium. During the luncheon three-minute reports were given by members from most of the states. Everywhere progress is being made, as was evidenced by the talks of the speakers. Visits to the occupational therapy department in the Muirdale Sanatorium and to the fine and attractive curative workshop at the County Hospital for Mental Diseases followed. Dr. G. F. Bellis of Muirdale and Dr. Young of the County Hospital formally welcomed the visitors and received their hearty thanks for the excellence and completeness of all the arrangements made for their entertainment and instruction.

Round table discussions filled the rest of the day. Dr. W. R. Dunton, Jr., Sheppard and Enoch Pratt Hospital, Towson, Md., presided over the discussions on work in mental hospitals.

Mrs. Gertrude Sample, chief of the occupational service, U. S. Veterans' Hospital, Oteen, North Carolina, was

chairman of the round table on work in tuberculosis sanatoriums.

Occupational therapy in general hospitals formed the subject of the discussion at a round table presided over by Miss Elsie Hassenstein, director of occupational therapy, Cook County Hospital, Chicago, Ill. Mrs. Grace Pebbles, of the Vocational Society for Shut-ins, Chicago, presided over the group discussions on work for the home-bound.

The officers elected for the year are as follows: president—Mr. Thomas Bessell Kidner, National Tuberculosis Association, New York, N. Y. (re-elected); vice-president—Dr. G. Canby Robinson, Johns Hopkins Medical School, Baltimore, Md. (re-elected); secretary-treasurer—Mrs. Eleanor Clarke Slagle, director of occupational therapy, New York State Hospital Commission, New York, N. Y. (re-elected); Board of Managers—Dr. Philip King Brown, Arequipa Sanatorium, San Francisco, Cal. (re-elected); Dr. B. W. Carr, Chief, division of occupational therapy, United States Veterans' Bureau, Washington, D. C. (re-elected); Mrs. Carl Henry Davis, Wisconsin Occupational Therapy Association, Milwaukee, Wis. (re-elected); Mrs. Elias Michael, Missouri Occupational Therapy Association, St. Louis, Mo. (re-elected); Dr. H. M. Pollock, State Hospital Commission, Albany, N. Y. (re-elected); Dr. Frankwood E. Williams, National Committee for Mental Hygiene, New York, N. Y. (re-elected); Dr. W. R. Dunton, Jr., Sheppard and Enoch Pratt Hospital, Towson, Md.; Mrs. Fred W. Rockwell, member of board of managers, Philadelphia School of Occupational Therapy, Philadelphia, Pa.; Mrs. Frederick Dale Wood, president, Illinois Society of Occupational Therapists, Chicago, Ill.

Hearty thanks were unanimously voted by the members to the Wisconsin

Occupational Therapy Association for the splendid services rendered in making such complete arrangements for the convention, and in particular for the fine souvenir program.

City Manager Government Credited with Dayton Progress

The Dayton, Ohio, Research Association has published a pamphlet on "Ten Years of City Manager Government," which credits to municipal reorganization so effected the following very material advances in health activities:

Greatly extending the city water works and placing the system on a paying basis.

Organizing the health department on modern lines, introducing a staff of five city physicians to serve the indigent sick in their homes and in clinics provided by the city.

Establishing a centralized public health nursing system by combining forces with private health organizations, and placing the whole under the supervision of the health department.

Establishing a complete food and dairy service; requiring pasteurization of all milk sold in the city, and medical examination of all food handlers.

Reducing the infant death rate from 124 per thousand to 67 per thousand.

Moving the city workhouse to a hundred-acre farm. Erecting a new workhouse which is operated by modern correctional methods.

Introducing a parole system which permits workhouse prisoners to work, their earnings being applied to the care of their dependents.

Establishing a free legal aid bureau with an attorney paid by the city.

Working in connection with the Dayton Playgrounds and Garden Association in conducting public playgrounds.

Establishing a crime prevention bureau.

Establishing medical inspection in the schools.

Establishing a central purchasing department which operates a centralized store system.

Establishing a sinking fund on an actuarial basis.



Hospital Association in Milwaukee, October 30 to November 3. Three days were devoted to conference sessions, and one day was given over to exhibits of work accomplished by member associations.

LATE HEALTH DECISIONS IN THE COURTS

BY DOROTHY KETCHAM. UNIVERSITY HOSPITAL, ANN ARBOR, MICH.

THE Supreme Court of Illinois decided recently that where an injured employee after an accident contracted gonorrhea, and the resulting gonorrheal arthritis postponed his recovery for many months, that he could not recover under the Workmen's Compensation Act for any disability caused by the disease "An employee can only recover for a disability that is caused entirely by the accident which he received in his employment, and—the employer is not responsible for any part of a disability that has been occasioned by another independent agency that has intervened after the accident occurred."—*Bunge Bros. Coal Company v. Industrial Commission*, 138 N. E. 189.

THE following situation which was passed upon by the Supreme Court of Pennsylvania recently, shows the type of evidence necessary to prove accident. On the morning of May 3, 1920, Riley, a clerk, complained of pain in his left chest and about three hours later coughed up blood, but continued to work until evening. On return home, and on the advice of his wife, he went to the family doctor and related the symptoms. He stated that while lifting an adding machine that morning "he felt something give way in his left chest." The hemorrhages continued until Riley's death twelve days later. No one saw him lift the adding machine on this day, although he had sometimes done so on former occasions, and while in the office of the plant physician, although complaining of pain, he said nothing about a strain or accident. The referee rejected the claim for lack of proof but the compensation board allowed it. The court of common pleas reversed this decision and returned it for rehearing, where, after additional evidence, the claim was again allowed and again rejected, hence the appeal.

The Court states that while it is not necessary to prove that the injury arose out of the employment, "it was incumbent upon the plaintiff to show her husband died from an action sustained in the course of his employ-

ment." This she sought to do by declarations made to herself and to the doctor over ten hours after the accident, during which time he (Riley) had been working. . . . "There is no ground upon which such declarations are competent as evidence—where the declarations are made under such circumstances as will raise the reasonable presumption that they are spontaneous utterances—and so soon thereafter as to exclude the presumption that they are the result of premeditation and design. . . ." they will be admitted as evidence.

There was no autopsy and apparently no positive evidence to support the findings.—*Riley v. Carnegie Steel Co.*, 119 Atl. 832.

THE Supreme Court of Michigan June 4, 1923, passed upon an award of compensation for neurasthenia caused by accident as a "personal" injury within the meaning of the compensation law.

The plaintiff was injured December 16, 1920, while working in an iron mine, suffering an inguinal hernia, later operated on. He was paid compensation for twenty-two and a half weeks and signed a settlement receipt, but later petitioned for further compensation, which was denied. April 4, 1922, he again petitioned, and, on hearing, an award was fixed to begin September 14, 1921, the date of the former decision. On review by the commission the award was to begin April 4, 1922.

According to the rule, a case cannot be reopened without additional facts as to the physical condition of the employee which may include the fact that the patient is worse than seemed indicated at the time of the original award. It seems that in this case that the plaintiff developed neurasthenia which was present at the last hearing, but which fact was not emphasized. The court states that neurasthenia caused by an accident or attributable to such is a personal injury under the act, and that since the evidence is capable of the inference that the disorder is worse than it was at the time of the former hear-

ing, the opinion of the previous court is upheld and additional award affirmed.—*Harris v. Castile Mining Co.*, 193 U. W. 855.

THE Supreme Court of Pennsylvania recently passed upon the matter of industrial disease and accident. An employee about twenty-one years of age claimed to be wholly incapacitated for work because of a disease of his right hip joint known as ilium osteoarthritis. On July 18, 1921, he entered the employ of the Budd Company as a press helper. An examination at the time by a physician in service of the defendant showed that Balch was in a normal physical condition and above the average. August 10, 1921, while he was lifting the center of a die with others, he sustained a rupture in his right groin. It was contended by him that the present development was the result of the injury, which was denied by the referee. On appeal the board after hearing *de novo* reversed the decision and made an award.

The board found that in the course of his employment this man sprained himself, suffered acute pain, "and at the time was rendered incapable of further work, and in consequence thereof, a hernia developed." This finding was supported and the question of the presence of typhoid raised but not upheld because of conflicting and insufficient evidence. Paratyphoid was suggested. Dr. Carnett suggested that the disease affecting the thigh bone was due to an infection caused by a microorganism in the joint which may arise in the absence of injury, but more frequently after injury. After examining the evidence the court makes a negative statement that "it cannot be successfully maintained there is no basis for the finding that the claimant is at the present time totally disabled and has been since the date of the accident as a direct result of the accident."

"While the law requires the relation of cause and effect to be established beyond mere possibility, it does not require its existence to be demonstrated with mathematical precision. Probability is sufficient."—*Balch v. Edward G. Budd Mfg. Co.*, 122, Atl. 1.

Directory

The Committee on Mental Hygiene of the New York State Charities Aid Association has issued a directory of the chief mental clinics maintained by general hospitals and public health agencies in the Manhattan district of New York City.

SANITARY AND HYGIENIC ADVANCE

A New Intestinal Disinfectant

A new intestinal disinfectant, $\text{CH}_2(\text{S Ag}) \text{Ch}(\text{OH}) \text{CHO} (\text{SO}_3\text{Na})$, is suggested by Lumière (*Compt. rend. Acad. d. Sc. Vol. 176, p. 510*) on the basis of extensive theoretical considerations and much experimentation, designed to discover a substance having the disinfecting action of organic silver salts but deprived of their power to precipitate proteins (and thus injure the body tissues) by the presence of a sulphur radical. The compound finally chosen is readily soluble, is not precipitated by alkali, chlorin compounds or ovalbumin and is unaltered by light. Its toxicity for the higher animals is so low that it takes one gram per kilogram of body weight to cause death while it is antiseptic in concentrations of one part to five or ten thousand. Experiments with a dog of a little over 10 kilograms demonstrated that the administration of one gram a day of the proposed disinfectant produced practical sterility of the feces in four days.

Anaerobes in Water

Meador & Bliss recovered anaerobes from 16, or 21 per cent, of 76 tubes of lactose broth, inoculated with water samples. These tubes showed gas production but no *B. coli* could be isolated. Of a total of 25 strains of anaerobic bacilli that were isolated, only two fermented lactose with gas.

Such findings throw some doubt on advisability of considering gas formation in lactose as strong presumptive evidence of the presence of *B. coli*. (*Am. J. Hyg., July, 1923, iii, 4, p. 394*)

Dietary Factor Essential for Reproduction

"If female rats are reared on the now well known 'synthetic' nutritive regimen consisting of fat, carbohydrate and protein in relatively pure, separate form to which are added an appropriate salt mixture and daily doses of vitamin A and B, normal growth and every appearance of health results." Evans & Bishop report, however, that depending somewhat on the season of the year, either a large proportion or practically all of such animals are sterile. (*J. A. M. A., Sept. 15, 1923, 81, 11, p. 889.*)

This condition the investigators consider as a dietary deficiency dis-

ease. Feeding experiments differentiate the factor concerned from vitamin C. meat, whole cereals, and lettuce leaves are some of the foodstuffs shown to contain this factor which is almost wholly absent from milk.

The factor has been extracted from protective foods and is singularly concentrated in the oil obtained by ether from wheat embryo after preliminary treatment with alcohol.

Cancer Treatment

It has been commonly assumed in treating cancer with X-rays that the characteristic changes in the cancer cells resulted from direct injury inflicted on the cells by the rays.

Nakahara has shown on mice in which cancer cells were implanted in one groin previously exposed to an erythema dose of X-rays, that the cancer cells underwent exactly the same changes histologically, supposed to result from direct injury by X-rays. Cancer cells implanted in the other groin were used as controls. (*J. Exp. Med., Sept., 1923, xxxviii, 3, p. 309.*)

Mental Factors in Industrial Hygiene

In an article dealing with mental factors in industry C. Macfie Campbell calls attention to the importance of early indications of mental disturbance in the worker. Usually mental disturbances do not come to the attention of the medical department until the later stages.

Knowledge of personal disturbances may often be secured from strange ups and downs in the wage chart of a worker. Fluctuations may often show, when checked up by a personal interview, a disturbing emotional factor on the floor where the worker is employed, an emotional conflict within the workers' personality, some distressing situation at home, or some physical ailment. (*J. Indust. Hyg., Aug., 1923, v. 4, p. 180.*)

Chaulmoogric Acid Production

"Seeds yielding large amounts of chaulmoogric acid, which has proved efficacious in the treatment of leprosy, have recently been received by the forests of Sierra Leone, West Africa, and from upper Chindwin, Northwest Burma. The African seeds are from the wild Gorli shrub. It is thought that owing to the nature of

this plant it will produce the valuable seed in a shorter time than is required by the forest trees from which the present supply of chaulmoogric oil is obtained. The seeds from Burma are those of the true chaulmoogric tree, which is native to that region. The Department of Agriculture has twice sent J. F. Rock, one of its agricultural explorers, to the native home of the chaulmoogric tree, and has secured through him considerable quantities of seed. Several thousand seedlings are now being grown in the government greenhouses at Bell, Md. These will be distributed as soon as they are large enough to withstand shipment." (*Science Service-Science, Aug. 17, 1923, lviii, 1494.*)

Defatting Acid Fast Bacteria in Vivo

In view of the recent work of Dreyer (*Brit. J. Exp. Path., June 1923, iv, 3, p. 146*) with defatted acid fast microorganisms, defatted *in vitro*, a communication from Sir Leonard Rogers to the *British Medical Journal* (July 7, 1923, 3263, p. 11) is of interest relative to the defatting of such organisms *in vivo*.

Rogers recounts the use of injections of sodium chaulmoogric acid in the treatment of leprosy. Beneficial results were also obtained by the use of sodium morrhuate and sodium soyate. Prolonged treatment with these substances produced disappearance of the lepra bacillus from the tissue and apparent cures. Favorable results were also obtained in treating cases of surgical tuberculosis with sodium morrhuate.

In the sera from three untreated nodular lepers the blood lipase was found to average only the equivalent of 0.033 decinormal sodium hydrate. In nine treated lepers the average was 0.22 or about the normal figure. Muir (Calcutta) reports finding low lipase content in severe leprosy reactions and good prognosis justified when there is high lipase content. Rogers also found that cases of surgical tuberculosis associated with low lipase content usually did poorly. He suggests that the preparations mentioned above increase the blood lipase which in turn dissolves the fatty coating on acid fast bacilli, i.e., the defatting causative bacteria *in vivo*.

Elevator Interlocks for Safety

Old presents a plea for the use of mechanical elevator interlocks (*Month. Lab. Rev.*, April 1923, xvi, 4, p. 693). Of 1,122 tragedies, 953 or 85 per cent occurred at the shaft door. Electrical interlocks are apt to be thrown out of circuit during the rush hours for the sake of getting more speed. All devices are apt to be found inoperative for various reasons unless inspected now and then. More real elevator codes are needed, but they cannot be informed governmentally without great difficulty. The author suggests that the insurance inspectors be turned loose on interlocks with the same instructions they now have on cables and safeties. "They have a way of writing out a little slip and leaving it with the owner intimating that if a certain dangerous condition is not fixed up within two days the insurance will cease."

The requisites of an effective interlock are listed.

Bacteriophage Phenomena in Acid Media

A contribution of considerable theoretical significance is made by Scheidegger (*Ztschr. f. Hyg.*, Vol. 99, p. 403), who shows that in a 37 degree broth culture containing bacteriophage but with a pH of 4.5, colon bacilli will grow, with no lytic action manifest. The lytic agent is merely rendered inactive, however, and not destroyed since adjustment to an alkaline reaction causes the normal bacteriophage phenomena to appear.

Glass Containers Best for Canned Foods

In his book on "Botulism" Dr. G. Leighton stresses the need of high and sustained temperatures to produce sterilization of canned foods. The chief points in favor of glass containers are the avoidance of metallic contamination and the ease of opening. Tin containers stand heat better and can now be closed with a small percentage of leaks. It is true that glass can be made to withstand high temperatures but the cost is thereby increased. With modern tins there is slight danger of metallic poisoning.

In editorial comment on this point the (*Lancet*, June 2, 1923, 5205, p. 1118) says: "A consideration of all the factors strongly favors the view that the risk of harmful bacterial infection, including botulism, is decidedly less if tin containers are given the preference to glass."

Metallic Salts and the Formation of Immune Bodies

The intravenous injection of the chlorides of manganese and cobalt is found by Walbum and Mörch (*Ann. de l'Inst. Pasteur*, Vol. 37, p. 396) to exert a markedly favorable effect upon the production of diphtheria antitoxin, the manganese salt being more powerful than that of cobalt. The use of manganese injections in connection with the routine production of antitoxin has greatly increased the yield in units of antitoxin resulting from otherwise similar treatment. A similar stimulating influence on the production of agglutinins is exerted by a considerable number of mineral salts, Be, Mg, Pb, Cu, Os, Ba, Zn, Hg, Al, and Mn being the most effective in the order given.

Peptone as an Aid to Vaccine Treatment

Crowe reports the use during eighteen months of intravenous injections of peptone in over seventy cases of patients who were very sensitive to vaccines. A carbolyzed saline preparation was used.

Many cases of infection by streptococci and *M. deformans*, particularly in the arthritis group, become so sensitive to vaccines that treatment is difficult and tedious. Cases cited seem to indicate that such cases when treated with peptone become desensitized and the difficulty of treatment largely removed. (*Brit. Med. Jour.*, June 23, 1923, 3206, p. 1046.)

Immunity Against Tuberculosis

The work of Sprouck at Utrecht (*Bulletin Mensuel de l'Office International d'Hygiene Publique*, Vol. 15, p. 601) has shown that a filtered extract of the tuberculous organs of infected guinea-pigs sterilized by filtration through a Berkefeld candle produce a state of allergy which may be transferred by the injection of the serum of the animal thus rendered allergic into another animal.

Malta Fever and Contagious Abortion

The extraordinarily close resemblance between *M. melitensis* and *B. abortus* (the causative organisms, respectively of Malta Fever in goats and men and of contagious abortion in cattle) includes not only practical identity in cultural characteristics but mutuality in agglutination and complement fixation. Nicolle, Burnet, and Conseil (*Compt. rend. Acad. d. Sc.*, Vol. 176, p. 1304) have however dem-

onstrated by the bold expedient of injecting living cultures of *B. abortus* into five human volunteers that this organism has no pathogenic power for man and does not even stimulate the development of agglutinins. The Malta fever organism has always been a dangerous one to handle in the laboratory and these researches open up the valuable possibility of using *B. abortus* in the diagnosis of Malta fever since both organisms react alike to the immune bodies formed in response to the presence of *B. melitensis*.

Breast Milk Dairy

Interesting activities of several breast milk dairies are recounted in a paper by Chapin. (*J. A. M. A.*, July 21, 1923, 81, 3, p. 200.)

"It is difficult to estimate the number of babies who have been benefited, as the hospitals receiving from thirty to fifty ounces a day have used the milk for a number of different cases. Taking the average amount used in private cases as a basis, I can fairly say that the milk has been given to at least one hundred babies during twelve consecutive months on an investment of \$10 for each baby to save its life."

Social Hygiene in France

France is awakening to its national problem of social hygiene says Merrill (*J. Soc. Hyg.*, May 1923, ix, 5 p. 257). Educative tracts for the army and navy eventually reach all of the male population since service is required of all young men. The first leaflet is given to recruits pending examination; the second when accepted for military service. These are retained by the young soldier during his service and on discharge he is also given a third pamphlet which stresses "clean family life, the value of health, the advantages of vigorous offspring, and the desirability of looking forward to a future of sound and able citizenship."

Detoxicated Diphtheria Vaccines

Benson has used an initial dose of 2,000 million detoxicated Corynebacterium diphtheriae, followed at three day intervals by doses of 4,000 million and 8,000 million bacilli respectively, to test the value of such treatment in cases of diphtheria. Local reaction was very slight and there appeared to be no clinical effect. Treated cases were alternated with control cases until 60 of each were obtained, after which all cases were treated making a series of 207, including 146 tested and 61 controls.

The author concludes that the treatment as outlined above has no appreciable effect in hastening the disappearance of bacilli from the nose and throat of the convalescent and that it "does not prevent cases of long persistence, to which, after an arbitrary period of three months, we apply the term 'chronic carrier.'" (*Lancet*, May 5, 1923, 5201, p. 895).

B. coli Index of Pollution of Water

The wide use of top minnows, particularly *Gambusia affinis*, for the control of mosquito breeding has led Havens and Dehler to study the intestinal flora of these fish and its effect on the *Bact. coli* index of pollution.

The normal intestinal flora of *Gambusia* in Alabama waters consists of *Ps. pyocane* and an unidentified, aerobic, lactose-fermenting, spore-forming bacillus. *Bact. coli* is not a normal inhabitant of the intestinal tract, and could not be recovered from fish grown in sewage polluted water. Moreover, fish kept in a glass jar in the laboratory in water to which large numbers of *Bact. coli* were added caused a more rapid disappearance of the colon bacteria than was found in control jars in which no fish were kept. This inhibitory influence appears to be due to *Ps. pyocane*. The authors suggest that this finding may indicate that in natural conditions the presence of a great many *Gambusia* may affect the colon index of pollution.—(*Am. J. Hyg.*, May 1923, iii, 3, p. 296.)

Mouse Typhoid Virulence

Webster, in a study of microbial virulence and host susceptibility in paratyphoid enteritidis infection in white mice has found that six strains of paratyphoid enteritidis bacilli, isolated from man and animals, differed markedly in virulence for mice. The inherent virulence for each strain for mice was not affected by repeated intraperitoneal and *per os* mouse passages.

Individual differences in susceptibility of mice to each strain and to graded doses of mercury bichloride were demonstrated and such differences appeared to be non specific in nature. (*J. Exper. Med.*, July 1923, xxxviii, 1, p. 45.)

According to Prof. Rasch syphilis in Denmark has declined 33 per cent in the period 1910-1922. The decline in gonorrhea has been much less pronounced. (*Lancet*, Sept. 1, 1923, 5218, p. 473.)

More Weight-Height Age Tables

A supplement to "Mother and Child" for July, 1923, presents new sheets of weight-height age tables, one prepared by B. T. Baldwin and T. D. Wood for children between 5 and 19 years of age, and the other prepared by R. M. Woodbury for the first six years of life by months.

Carborundum and Tuberculosis

The third study by L. U. Gardner on the relation of mineral dust to tuberculosis (*Am. Rev. of Tb.*, July 1923, p. 344) deals with carborundum dust and brings out some interesting peculiarities. Carborundum dust alone produces surprisingly slight reaction in the lungs of guinea-pigs, but the simultaneous presence of carborundum dust and tubercle bacilli of low virulence is to transform a self-limited process into a progressive tuberculous bronchopneumonia. The failure of the dust by itself to produce extensive fibrosis is held by the author to favor the theory of English pathologists which attribute the harmful effects of silica to its chemical rather than its physical properties.

Resistance of Bacteriophages

Watanabe (*Arch. f. Hyg.*, Vol. 92, p. 1) has made an important study of the resistance to heat and to chemical disinfectants of a considerable series of bacteriophages. In general the resistance of the bacteriophages appeared to be somewhat greater than that of the vegetative cells of bacteria and somewhat less than that of bacterial spores. The variations in resistance between different strains of bacteriophage (even among those operative on the Shiga bacillus) was very great. It should be noted that treated bacteriophages which had lost their power to produce bacteriolysis when sown directly on an agar plate were still "viable" as shown by the fact that they regained their effectiveness after incubation in a liquid culture of bacteria.

The Oligodynamic Action of Metallic Salts

It is claimed by Herzberg (*Centralbl. f. Bakteriol. I Abt., Orig.*, Vol. 90, p. 125) that the oligodynamic effect of certain metallic salts (copper and mercury) in high dilution is due not to direct action of the salts themselves but in the main to the fact that these salts serve to bring about secondary oxidations. The most characteristic of these effects disappear under anaerobic conditions.

Swine Plague Serum Prepared by Electro-Osmotic Method

An interesting technique has been used by Ruppel & Ornstein (*Ztschr. f. Hyg.*, Vol. 99, p. 101) in the preparation of a vaccine against swine plague. The authors claim that vaccines prepared from heat killed cultures are ineffective and that those containing viable germs are dangerous. Their own method consists in exposing the bacteria to a powerful electric current, centrifuging and using the precipitate as basis for a vaccine.

Mosquito Feeding

Tests for the source of ingested blood found in mosquitoes captured in Louisiana have been made by King and Bull (*Am. J. Hyg.*, Sept., 1923, 3, 5). General averages of the results of precipitin tests made during a season show the following sources of the mosquitoes' meals: cow, 35.7 per cent; horse, 32.6 per cent; pig 16.1 per cent; dog, 8.3 per cent; man, 4.3 per cent; and other animals (chickens and cats), 3.0 per cent.

Organism Resembling B. Pneumointes

Holman and Krock have reported the isolation from the oral cavity of man, rabbit, and guinea pig a micro-organism closely resembling *Bacterium pneumointes* in morphological appearance and manner of growth. This finding is of importance since this newly described organism may so readily be confused with *B. pneumointes*. (*Am. J. Hyg.*, Sept. 1923, 3, 5, p. 487.)

Responsibility for Milk-Borne Epidemic

On May 12, 1923, there occurred in Campheltown, Scotland, a milk-borne epidemic of typhoid fever that included over 200 cases. Investigation by the medical officer of health showed that a female worker had returned to work after an illness. In legal proceedings that followed it was not claimed that the farmer knew that the worker was still suffering from an infectious disease but that in dealing in such a commodity the defendant should have secured a medical certificate before allowing the woman to return to work. "As the defendant was apparently the first person to be prosecuted in Scotland for this offense the sheriff imposed a modified penalty of one pound with the option of seven days in gaol." (*Brit. Med. Jour.*, June 2, 1923, 3257, p. 953).

NEWS FROM THE FIELD

Adopt Five Day Week for Women

The A. Nash Company of Cincinnati has adopted a five day week and a seven hour day for the women in their employ. They also have a 50 cent wage minimum and the change in the length of the day meant no wage reduction.

In recommending the shorter work hours Mr. Nash said:

"Careful inquiry has lead me to the definite conclusion that practically all the women workers in industries are really performing the duties of a wife or are preparing to do so. The percentage of girls and women who enter industry as a life work and do not expect ever to have homes, I believe is less than 2 per cent. It is preposterous to expect a woman in any industry to do these highly specialized jobs, working eight hours per day, and prepare herself for love, husband and family."

In New York City a report on the merits of the five day week brought a diversity of opinions. One merchant said he had been working a five day plan for three years and found it very successful, while another claimed he lost money and had to raise the price of his shoes because of the lost time and delay in delivery. He said he had installed the five day week only because the labor union had been able to force him to do so.

Health Conditions Among Chemical Workers

On the basis of physical examinations made by the U. S. P. H. S. of 916 men employed in the various occupations of the general chemical industry, attempt is made by Frank M. Phillips in *Public Health Reports* to correlate the findings on the basis of income. The income range was not large and classification on this basis was made into three groups, 291 men earning between sixteen and twenty dollars per week; 230 between twenty and twenty-five dollars, and 108 earning more than twenty-five dollars per week. The age groups averaged 35.07, 35.04 and 34.99 years in the order named. Racially, the majority of the men were Americans; next in order of frequency are Poles, and next, Slavs. There were a few Italians and

persons of other nationalities.

Dynamometer readings, chest expansion, and vital capacity all increase with income. The number of children born and the number still living decrease with increase in income, while the percentage of children born who are still living increases with income. Heart disorders and pyorrhea are both high in the lower income group, decreasing as income increases. Blood count, as measured by the Tolquist index, shows no regular series in either income direction. The same statement may be made regarding overweight and underweight, hernia, defective vision, defective hearing, defective teeth, tuberculosis, bad posture and diseased tonsils.

Child Health Association Scholarship Awards

The American Child Health Association announces that its Resident and Travel Scholarships for Physicians have been awarded to the following candidates:

Dr. Charles Armstrong, Salisbury, N. C.; Dr. William W. Bauer, Milwaukee, Wis.; Dr. R. L. Carlton, Winston-Salem, N. C.; Dr. Eugene C. Chimene, Minneapolis, Minn.; Dr. William DeKleine, Saginaw, Mich.; Dr. Seymour Fiske, New York, N. Y.; Dr. Arthur M. Kimberly, Bristol, Conn.; Dr. George A. Lamont, Vancouver, B. C.; Dr. George N. Leonard, Albany, N. Y.; Dr. Marie M. Long, Memphis, Tenn.; Dr. George C. Marlette, Bay Minette, Ala.; Dr. Walter R. Moore, St. Joseph, Mo.; Dr. Russell B. Sprague, Yarmouth Port, Mass.; Dr. Thomas D. Walker, Macon, Ga., and Dr. Ruth Weismann, Dorchester, Mass.

The purpose of these scholarships is, broadly, to stimulate interest in child health work and to provide means for better training of physicians along this line.

The special committee on Physicians' Scholarships of the American Child Health Association included the following members:

Doctors Borden S. Veeder, chairman, Fred L. Adair, Arnold Gesell, William Palmer Lucas, Ralph W. Lobenstein, Alan McLaughlin, Lawrence R. DeBuys, Clifford G. Grulee, E. J. Huenckens, Lawrence T. Royster, Anna Rude, Thomas B. Cooley, Philip Van Ingen, Robert L. De Normandie, Samuel McC. Hamill, J. H. Mason Knox Jr., Henry L. K. Shaw, John M. Dodson, with whom were associated three members of the staff of the American Child Health Association.

Courtenay Dinwiddie, general executive, Ella Phillips Crandall, associate general executive, and Dr. Richard A. Bolt, director medical service. The committee on awards included the following: Borden S. Veeder, M. D., chairman; John M. Dodson, M. D., Alan McLaughlin, M. D., Anna E. Rude, M. D., Philip Van Ingen, M. D., Richard M. Smith, M. D.

Semicentennial of Public Health in Michigan

The third annual conference of health officers and public health nurses held in Lansing December 12 to 14 marked the semi-centennial of public health in Michigan. Dr. W. S. Rankin and Dr. George E. Vincent are two of the men from the outside who helped to make the occasion afford cross section of health improvement, not merely in Michigan, but in the country at large.

New England Industrial Nurses' Association

Investigative work is as much the function of the plant nurse as is first aid, stated Hiram Behr, of the Liberty Mutual Insurance Company in addressing the meeting of the New England Industrial Nurses' Association held in Boston in October. The information she gathers in regard to causes of accidents and conditions surrounding disease has a much higher potential in preventive work than is generally appreciated. And on the intelligence and completeness of her reports the management must rely for knowledge of actual plant conditions. Safety as well as other welfare activities is best administered through committee organization, and the nurse, because of her office, should be automatically a member of such committees.

Another very sane suggestion was made by Mr. Behr in the matter of goggles for eye protection. Employees are proverbially averse to wearing goggles in certain operations where their utilization is really imperative. The remedy suggested is to purchase a variety of goggles and allow the wearer some choice as to which type of goggle suits him best. He will wear the pair he selects, and is less likely to oppose wearing them when this element of choice enters into the matter.

Temperaments as causes of accidents come within the observation of nurses. A slow man on a fast machine, a fast man on a slow one, worry as a cause of absent-mindedness, all are factors to consider. And in the nurse as well, personality counts. The meeting was made the occasion of consultation on the problems of the plants whose representatives were present at the meeting.

Health Council to Survey Indians' Health

At the request of Dr. Hubert Work, secretary of the interior, the National Health Council has agreed to be responsible for an authoritative study of health conditions among the Indians, provided the money for such survey can be provided from outside sources.

American Student Health Association

The annual meeting of the American Student Health Association is to be held in Cincinnati January 1 and 2. The program will be made up of five sessions devoted mainly to an informal consideration of clinical questions or topics related to the carrying out the work with the sick or injured. A considerable assignment of time and talent has been made to the discussion of the whole question of sanitation in student living quarters and places of patronage.

To Hold Conference on Immigration

The National Industrial Conference Board called an open conference of upwards of two thousand industrialists, public officials and representatives of business and trade organizations to meet in a national immigration conference December 13 and 14. No formal vote or recommendation was taken by the conference, but a summation of the vital issues involved made in the six questions which were debated in open conference during the sessions.

Dr. Andrew Balfour Directs School of Hygiene

Dr. Andrew Balfour, who has directed the Wellcome Bureau of Scientific Research for the past ten years, has been chosen as the first director of the School of Hygiene endowed by the Rockefeller Foundation in London. Following a brilliant academic career at Edinburgh and Cambridge, he served in the South African war as civil surgeon. As director of the Wellcome Tropical Research Laboratories in Khartoum from 1902 to 1913 his reports on health conditions of that period are of first rate importance. In 1918 he undertook the organization of the public health services of the Egyptian government.

As director of the Wellcome Bureau, he has contributed valuable research on the spirochetosis of relapsing fever, blood conditions and bacteriological problems connected with

sanitation. He is joint editor of Lewis and Balfour's "Public Health and Preventive Medicine," and has published a number of monographs on sanitation. His scientific background, coupled with unquestioned administrative skill, will make him a brilliant head of the specialists identified with the School of Hygiene.

Introduction to a New Outlook in Medicine

Beginning in the November 3, 1923, issue of *The Lancet*, Sir James Mackenzie is presenting a three-part article on symptomatology which is a survey of progress in medicine and an outline of the directions research is taking in order to supply the defects of present practice. Defining disease as "the reaction of the body to a noxious agent," his attempt is to reduce the great mass of symptoms any sick man may develop to order and classification according to some definite principle, such as their relation to the mechanism or process which regulates functions. The symptoms of disease are merely disturbances of normal reflex processes. From a study of the principle of the reflex arc he proceeds to organic reaction to increased or decreased stimulation, and has evolved "the law of fluctuation," which must be considered as highly illuminative of some features of functional activity. The articles, and the research they represent, are of the greatest value, particularly because the observation is centered upon the functioning organ, and not upon the end results of disease.

Examination for entrance into the regular corps of the United States Public Health Service will be held on January 7, 1924, at Washington, D. C., Chicago, Ill., and San Francisco, Cal. Requests for information or permission to take this examination should be addressed to the Surgeon General, U. S. P. H. S., Washington, D. C.

Dental Groups Meet in Cincinnati

The meeting of the American Academy of Applied Dental Science, to be held in Cincinnati, Ohio, January 7 to 9, 1924, is called as a "Life Extension Convention," because the chief objective of the organization, and of this meeting in particular, is the province in preventive medicine of adequate care, dental and surgical, of the oral cavity and its associated parts. Dentists and surgeons, physi-

cians and nutritional experts will present a program and undertake discussions in which the general public is admittedly a partner in the effort to achieve public health, and through health a lengthened life span and a greatly prolonged period of productive activity. The program includes:

"Let Us Take the Public Into Our Confidence," by Dr. N. W. Blum, Chicago, Ill.

Address, subject to be announced, by Dr. Ray Lyman Wilbur, president, the American Medical Association, San Francisco, Cal.

Papers and clinics will be presented by the following:

Dr. George Huston Bell, Dr. George R. Lindsay, Dr. George W. Clark, Dr. Bertram Ball, Dr. Frank Tracy, Dr. A. J. Neulinger, Professor E. V. McCollum of Johns Hopkins University will present the relation of diet to tooth preservation and development.

Silver Jubilee of American Hospital Association

Under the presidency of Asa S. Bacon, the twenty-fifth annual conference of the American Hospital Association convened in Milwaukee October 29. A series of very practical reports on important subjects included membership classifications, community relationships, building and construction, equipment and maintenance, and on flooring. A new note of co-operation was sounded with reference to the standardization program initiated by the American College of Surgeons. In presenting this subject, Dr. Franklin H. Martin urged that the hospital and medical minds concentrate upon the determination of what are necessities and what luxuries in hospital service. He sounded a warning note against extra charges for such essential services as laboratory investigation. The extra charges should be for the luxurious room and super-added comforts, that matters entering into scientific care at whatever cost must be supplied to every patient under hospital supervision.

The difficulties of record keeping as analyzed by Dr. Malcolm T. MacEachern command the interest of institutional administration bodies everywhere. Of the institutions that have failed to meet the minimum requirements as to records, Dr. MacEachern stated that such failure was due in 57 per cent to deficient organization, and that 52 per cent failed because of poor laboratories or inadequate records. The problems of the small institution had a very able advocate in C. S. Woods, superintendent of St. Luke's Hospital, Chicago, who suggested that the American College of Surgeons permit the

hospital of twenty-five to fifty beds to suggest from their own difficulties pertinent phases of hospital work for special study by the college. Dr. Caroline Hedger made a very spirited criticism of certain administrative features of hospital training schools for nurses. Careless platitudes will not serve to clarify the situation, she said. The necessary information on what is actually being done will have to be forthcoming before constructive improvements can be instituted. An investigation of the subject in Chicago revealed such confusion of records, and such imperfect understanding of the subject that in not a single instance could it be determined what it costs to feed the student nurses, not to mention the desirability of learning what it costs to train a nurse.

The dispensary was discussed chiefly from its position as an adjunct to the hospital, though the various papers revealed the desirability of knowing more about services, distribution, personnel, responsibility to management, and other vital matters pertaining to dispensary matters. Certain it is, according to Dr. Alec M. Thomson, that the dispensary group is everywhere coming to be regarded as the exponent and advocate of preventive medicine. Interesting questions were raised on the subject of health examinations in general, and the matter of charges to patient direct, to employees, or to the insurance company demanding the health inventory was fully canvassed. It was generally agreed that the broader application of dispensary findings is greatly hampered for lack of follow-up machinery.

Dr. Asa S. Bacon will serve the association as president during the current year. Dr. E. S. Gilmore, superintendent of Wesley Memorial Hospital, was named as president-elect; Dr. J. B. Franklin, superintendent, Baylor Hospital, Dallas, Texas; Dr. C. W. Munger, superintendent, Blodgett Memorial Hospital, Grand Rapids, Mich., and Emily Loveridge, Good Samaritan Hospital, Portland, Ore., were made first, second and third vice-presidents, respectively.

Industrial Medicine Breaks in Germany

The Berlin correspondent of the *Journal of the American Medical Association* reports that industrial physicians in Germany, because of delayed payments of their fees, are hardly able to exist. Many physicians have already found themselves compelled to refuse credit to sick benefit societies and to treat patient members of these

societies only for cash payment, which means a cessation of their contracts.

The medical profession demands immediate governmental regulation and legislation in favor of the industrial benefit societies, which are in such great difficulties. If the inability of the industrial benefit societies to pay is not lessened in the immediate future, the entire medical profession will no longer be able to co-operate in sick insurance, and a total breakdown of social institutions will then be inevitable.

Pharmacists have recently taken the same attitude as the physicians toward the sick benefit societies. Their resolutions state that since the sick benefit societies are unable to pay, the majority of pharmacists are in danger of ruin; in consequence, if this condition continues, they will be compelled to suspend their contracts with the sick societies and to furnish medicines only for cash. In the face of this threat the treasury department has succeeded in bringing about a temporary agreement. The sick benefit societies have made a monetary advance to the pharmacists with which to renew their stocks, and have further assured them that they will pay the amounts due for medicines more promptly than heretofore.

To Extend the Use of Fish as Food

At Bologna recently was held a Fish Congress designed to extend the use of this food. From the chemical point of view interesting questions were taken up, especially the relations between the saltiness of the ocean and the migrations of fish beds; and, on the chemical properties of fish oils, notably from the point of view of their richness in vitamins. The value of certain oils, especially the oil of cod liver, is attributed to their richness in vitamins, and it seems to be quite certain that the ocean is a medium particularly rich in all sorts of vitamins.

Along the same line Mme. Randoine has recently pointed out that the source most rich in vitamins is the oyster. It is the anti-scorbutic vitamin which the oyster contains in the proper proportions that has never before been found in a single living organism. The oyster could be a source of vitamins not only for consumption, but to facilitate the investigations on their isolation.

The American Electrochemical Society will hold its spring meeting in Philadelphia, April 24 to 26, 1924.

U. S. Uses Three Million Pounds Insecticide Annually

The powdered heads of a flower, pyrethrum, was the world's first insecticide and was for many years man's only weapon against the ravages of fleas, flies, cockroaches, ants, lice, bedbugs, and other vermin of the invertebrate type.

Like many other of the world's conveniences, its discovery came in a totally unexpected way. The flower, showy in appearance, is even now cultivated for decorative purposes. It was through this attraction that its insecticidal action became known—some withered flowers having been cast out, the householder was surprised to find a considerable collection of dead insects lying about, which led to the discovery and its subsequent utilization of the product. The natives who used it first were puzzled by its action and for a long time refused to divulge its source or method of production. John Powell writes the story of pyrethrum in the October 31 issue of *Drug and Chemical Markets* and reports the researches of the last decade that have revealed the cause of its toxic properties. Pyrethrum owes its insecticidal value to the presence in the pollen of a volatile oleoresin. This is present in the greatest amount in the closed flower heads, which must be gathered early in the season at the time the insecticidal value is sealed in the flower by the process of nature.

Pyrethrum is the ideal household insecticide for the reason that it is not poisonous to humans and may, therefore, be safely kept where there are children. Also its use is suitable where other preparations would be obnoxious. It is non-odorous and will not stain fabrics.

The import of pyrethrum flowers, both Japanese and Dalmatian combined, indicate that America alone uses more than three million pounds a year.

Mine Rescue Standards

A tentative study (Technical Paper 334) of "Mine Rescue Standards" prepared by a committee appointed at the International Mine Rescue Standardization Conference of September, 1921, has just been issued by the Bureau of Mines. The study is particularly valuable in bringing out the physiological effects of gases, adequate methods for the detection of the gases encountered in the mines, the requirements of breathing apparatus and the physical fitness of men to wear breathing apparatus.

Edward L. Keyes Heads Social Hygiene Association

Dr. Edward L. Keyes was elected president of the American Social Hygiene Association, succeeding Dr. Hermann M. Biggs, deceased, at the annual business meeting of the association, which was held at the national headquarters October 26, 1923. Dr. Keyes has been identified with the social hygiene movement for many years. His scholarships and general standing assure in his appointment a continuation of the leadership of the social hygiene movement under the successive administrations of Dr. Charles W. Elliot, Dr. Abram W. Harris, Dr. William H. Welch and Dr. Hermann M. Biggs.

Digest of the Labor Laws of the State of Arkansas

A Digest of the Labor Laws of the State of Arkansas as in force at the close of the legislative session of 1923 has been issued by the Arkansas Bureau of Labor and Statistics. The general labor laws are fully annotated and in addition a subject classification refers to a large number of laws which directly or indirectly affect labor.

Delaware Improves Laws on Child Labor

Delaware has reduced a ten-hour day, fifty-four hour week, for children under 16 to an eight-hour day, forty-eight hour week, and raises the minimum age in dangerous occupations, including mines and quarries, from 15 to 16. A street trades clause, applicable to Wilmington, prohibits boys under twelve and girls under fourteen from engaging in street occupations, and prohibits such employment for any child between seven p. m. and six a. m., and during school hours.

Warehousing and Transportation Economies in Distribution

As a part of the general battle against waste, the Domestic Distribution Department of the Chamber of Commerce of the United States is making a comprehensive study of warehousing and transportation. The impulse toward the use of public warehouses, proper storage is a science—the care of food, wearing apparel, drugs and other commodities in transportation is no longer a mere piling of goods in ill-lighted ramshackle old buildings, fit for nothing else—sanitation as well as economy is served by classification and consolidating shipments.

Role of Oxygen in Food Spoilage

The discovery of Pasteur of the relationships of microorganisms to organic decomposition led to a sort of mental stampede which Long directed all investigation into food spoilage along bacteriological lines. Gradually, however, an accumulation of observation points to the fact that definite chemical changes take place in foods which in time render them unfit for consumption. This type of oxygen spoilage is discussed by Thomas M. Rector in the October issue of *The Canning Age*. The rancidity of nuts, he says, is chemical rather than biological in nature. Nuts packed in oxygen-free containers in his laboratory early in 1921 are still in perfect condition.

Oxygen accounts also for the rancidity of edible oils. Olive oil chemically pure, and containing less than one-tenth of one per cent of moisture became highly rancid under conditions that promoted oxidation. The spoilage of butter is complicated by biological factors, but experiments with butter fat confirmed Rector's thesis that the presence of air is the cause of its decomposition.

Frozen eggs, salad dressing, dried milk, catsup, fish, and olives are listed among the foods which commonly deteriorate through the oxidation reaction. Without minimizing the importance of bacteria, yeasts, and molds in food spoilage, the subject of oxidation *per se* is always to be given full consideration.

American Institute of Chemistry

The American Institute of Chemistry represents the first organized effort of American chemistry to apply the scientific method to the study of men engaged in the chemical industry.

Deploing the lack of reliable data on the personnel, classification, and distribution of chemically trained men in industry, the Institute has set itself the task of appraising the chemical engineer in industry, of determining the kind of technical men the present situation demands, and estimating whether the 1,350 graduates that graduate annually from 129 technical institutions are going to posts where their best talents are likely to be utilized. The question of apprenticeship before or during lecture work introduces cooperative courses between colleges and industry as a means of promoting practical training. Such procedure would shorten apprenticeships on the part of graduates after they have entered industrial positions.

Chemists Asked to Study Coast Water Pollution

David M. Neuburger, LL.B., president of the International Coast Anti-Pollution League of America issues a call to the chemist to purge industry of its contamination of coast waters. He looks to the laboratory rather than to legislation to correct the poisonous effluents of oil refineries, and oil burners or oil carrying vessels of chemical and dye works of straw board factories, pulp mills, tanneries, steel mills and countless other agencies that contribute to industrial waste, while it causes ruined property values, destroys marine life that serves as food and brings disease to a degree that is appalling.

That the matter is urgent is brought out in the report of the Interdepartmental Committee on the Pollution of waters, which found pollution by oil to be present in all of the thirty-five places investigated on the Atlantic and Gulf coasts.

Make Study of Refrigeration

A scientific congress recently held at Strassburg, had for its object the study of refrigeration from the standpoint of production and utilization. Particular mention is made in *Industrial and Engineering Chemistry* of the explanation in this congress given to the utilization of freezing in the preparation of vaccines and in medicine.

There was also proposed a means of using low and constant temperatures in research laboratories. Without descending to temperatures as low as those of liquid air, it is certain that in the investigation of temperatures as low as 0 degree and—50 degree C., the chemical reactions and phenomena are not sufficiently known and merit further study.

United States Finds That Drug Habit Is Costly

That a total annual loss of more than \$1,825,000,000 is suffered by the United States through the expense of the drug habit and the loss of the services of the addicts, is the statement of Dr. Carleton Simon, special deputy commissioner of the New York City police department in an address before the Women's City Club of that city. A further cost, not estimated in dollars and cents, is involved in the fact brought out by Dr. Simon that of the many thousands of addicts examined in the service of the New York City narcotic squad about 85 per cent have criminal records.

HEALTH PUBLICATIONS REVIEWED

The Communicable Diseases

The aim of Dr. A. J. McLaughlin's book, and presumably of the whole series of which it forms a part, is to provide knowledge in regard to public health problems in the form which will appeal not to the professional specialist on the one hand nor to the general public on the other, but to the increasing group of intelligent citizens, physicians, lawyers, clergymen, teachers, social workers, club women, business men and business women, who have become interested in public health and desire to know something about it without taking time to wade through exhaustive and highly technical treatises. In the present volume Dr. McLaughlin discusses the general causes of disease and the development of epidemiology with the underlying principles of quarantine, isolation and disinfection and of infection and immunity and then proceeds in the latter four-fifths of the volume to discuss briefly and succinctly each of the communicable diseases. In connection with every disease there is given a definition, a brief outline of the history of our knowledge, a discussion of the specific cause and mechanism of infection and the principal methods of control. It is needless to say that the reader of this volume can rely upon the information furnished as reliable and completely up to date and Dr. McLaughlin has rendered a very real service in presenting it in such compact and effective form. It should not only be of value to the class to which it is specifically addressed but should also prove a useful reference book for the public health worker engaged in field activities.

Harper and Brothers, New York, 1923.

The Making of an Executive

A. Hamilton Church has brought forth his valuable book on "The Making of an Executive," the most comprehensive statement we have seen on the character and qualifications of the high class business executive. The changed standards of recent years no more permit haphazard methods on the part of the executive than they leave to carelessness or chance the details of equipment, layout, organization or inspection.

Whatever else he may become, the modern executive must be first a fact gatherer and a fact user. What facts are necessary tools of management, how they may be collected, analyzed, interpreted, and reduced to a graphic representation which makes them possible to operate as control measures throughout the plant.

The relationships of the executive are defined with regard to the (1) office, (2) purchasing and bookkeeping, (3) the factory, (4) marketing, (5) promotion of quality and quantity, (6) finance, (7) the function of industrial research. Satisfactory industrial relations are seen as the logical outcome of vision and right method.

Questions of welfare are incidental to many topics—Church makes it clear that undue fatigue on the job is to be removed through expert investigation—micromotion study, if necessary—of the problems involved; worry is avoided through proper division of functions; and marketing safeguarded through preventing defined quotas.

Physical welfare is insured through engineering methods; psychic welfare through adequate personnel work—selection, training, and satisfactory initiation periods. Church expressly favors methods of management that reduce friction to a minimum by committee organization that permits the freest possible expression of the workman. Stern practice fully demonstrates a self-governing atmosphere eventually lifts a considerable burden from the management.

Plant hygiene must be fully adequate and all health safeguards provided. But welfare work must never be done under the guise of a gift from the management. He goes so far on this point as to say that safety depends upon always remembering that the primary object is an industrial one. "Just so far as it is found profitable to improve conditions, it should be done, and no further."

He is very explicit that the machinery of the plant shall be sensitive to the intelligent manipulation of the executive, and that the policy of a concern is its concrete expression added to this exhaustive and accurate knowledge and an executive is made.

It is little wonder that executives

are scarce, that most concerns feel they must develop their own men to administrative positions, and that successful heads for going concerns are so hard to replace or supplement that the National Industrial Conference Board is making a specific effort to devise cooperative effort between schools and industry for the provision of a suitable background to develop the type of trained man the situation calls for.

D. Appleton and Company, New York, 1923.

"Eating Without Fears"

Some few years ago a farmer died at the ripe age of 100 or thereabouts, and the newspapers gave much space to his antemortem declaration that his long life was due to his total abstinence from tobacco. A well-known "Columnist" paralleled this statement with the remark that Gladstone attributed his long life to the fact that he was never without the companionship of Lady NICOTINE:—and at the head of the two columns put the caption "Take your choice".

The author of this book, C. F. Scotson-Clark, has been a happy healthy man, and has enjoyed many good things in life. The tale he tells is most interesting reading, especially his collection of stories, and considered as a piece of narrative it might even win a prize.

But—of its scientific value the least said, the better. If it were not so humorous it might be dangerous for unfortunately when figuring foods, sauce is not always sauce.

Nicholas L. Brown, New York, 1923.

Home Sanitation in England

Domestic sanitation and house drainage by Henry C. Adams, is a very good presentation of English practice in regard to building construction and house drainage with brief chapters on refuse disposal, heating, lighting and ventilation. The book is a little archaic in some respects in its assumption of danger from ground air and sewer air and its value to American readers is naturally diminished by the fact that the details of plumbing practice differ considerably in the two countries. The chapter on refuse disposal is of rather special interest, giving excel-

lent regulations for the disposal of refuse by dumping, valuable data in regard to the operation of the Shore-ditch refuse destructor and a description of some interesting methods which have been worked out in England for the salvaging of scrap metal and other constituents of house refuse.

Oxford University Press, American Branch,
New York.

Birth Control. What Is It?

Dr. Lydia DeVilbiss, formerly director of the Division of Child Hygiene, State Health Departments of Georgia and Kansas, has written a very clear and effective account of the significance of birth control from the standpoint of eugenics, international relations, public health and mental deficiency with a temperate plea for such modifications in federal and state legislation as will protect the conscientious physician in his relations to his patients while providing effective safeguards against illegitimate abuses. The book is worthy of the serious attention of public health workers.

Small Maynard and Company, Boston, 1923.

Health Building and Life Extension

We are glad to publish herewith a letter from Dr. Fisk, the Medical Director of the Life Extension Institute. The subject with which Dr. Fisk's book deals is of the greatest importance and we heartily agree that specialists in the field of public health will find in this work data of very real value which it would be difficult to get so easily from any other source. Our reviewer was considering the book from the standpoint of more general readers and literary impressions are necessarily more or less subjective.—Editor.

My dear Sir:—My attention has been called to a review of the book "Health Building and Life Extension" appearing in the August issue of THE NATION'S HEALTH.

It appears evident that on hasty consideration of this book the reviewer, probably misled by the title, assumed that it was intended wholly for a popular audience. While I maintain that there is a message for the general public in this book, nevertheless it is primarily a scientific study of ill health in industry and an adaptation of the important information secured through the surveys we have made of these health problems to the general population.

The aim of this book has been to furnish original studies and important fundamental statistical information as to the prevalence of certain physical impairments leading to disease, and an outline of the rational remedial measures of all kinds that might be applied to the correction of these conditions and the upbuilding of individual and public health. A good deal of time and money was spent in the collection of this information and the preparation of this material and I know that the work has high value to me personally as a book of reference, and therefore should have value to all physicians, health workers, students, and writers who deal with these health problems. However, the book is not a mere technical array of statistics and there is no good reason why people of average culture who are at all interested in health problems should not find the book an accessible source of information on these topics.

Very truly yours,

EUGENE L. FISKE, M.D.

Medical Director

Life Extension Institute, Inc.

Human Character

Why does Lady Maria pay a ten-minute call on Lady Jane in the afternoon; why does a person in a state of excitement find it necessary to communicate the cause of his excitement to everyone he meets? Why does the billiard marker spend his holiday watching billiard matches? Why does a murderer go back to the scene of his crime? Why does the patient retail to his visitors full details of his complaint? Why did Herbert Spencer write a system of philosophy?

The answer is the same in every case; it is because the sentiments of the individual concerned find natural relief in expression of this kind. Feeling, not reason, governs the lives of men. Subjective, not objective, reasons explain their conduct and what they do under excitement is done primarily to please themselves.

The endeavor to prove all man's actions, reasonable and logical instead of instinctive and emotional, has resulted in the elaborate distortions of the earlier psychologists, for the fact that much of our education does not "take"; and foreordains the failure of reformers that propose the destruction of society by a single coup, and to rebuild it at a single stroke by a better plan. Nearer the truth comes Hugh Elliot in his recent book on "Human Character."

The fundamental point to appreciate about human character is that motives are activated by instinct; that intellect is an acquired tool to give them expression; that mental life is merely a sequence of thoughts and feelings, following each other in endless succession; that what we attend to depends upon outside stimulus; that the predominant mental tone is what gives cast to character; and that character itself is a fluctuating thing, and at most is an abstraction—a name for the average mental manifestations.

A man must interpret life on the basis of his own experience. The rich see life very differently from the poor, and people at the two extremes understand one another only on the basis of common experience. As every individual has a fixed limit of mental capacity, so is there apparently a fairly definite range of pleasure-tone than cannot be passed. Above that limit the nervous tension cannot be maintained and further stimulus leads, not to further pleasure, but to pain. Accessions by fortune, of power, etc., according to Elliot, rarely bring the happiness that was anticipated from them; for few individuals realize that their "possible range of happiness is physically limited, and very likely is not much greater than that which they already enjoy."

On this basis Elliot is most illuminating in his discussion of predominant motives on the relative paucity and general feebleness of voluntary actions, on germs, on vice and crime, and on the influence of disease. He has much to say of the bad effects of mental excitement during states of fatigue. The whole thesis tends to put psychology on a constitutional basis and to show the futility of trying to force the mental processes, either social or individual.

Longmans, Green & Co., New York, 1922.

The widely known Publication No. 12 of the National Committee for the Prevention of Blindness, "Eye Hazards in Industrial Occupations," first issued in 1917 has been revised, greatly broadened in scope, brought up to date, and is to be available for general distribution by January 1, 1924.

"Food, Teeth, and Health," is the title of an educational pamphlet issued by the Child Federation of Philadelphia, which treats of prenatal foundations for good teeth, of foods

conductive tooth development, and of hygienic care.

The digest of a report of a survey of "The Public School System of Arkansas" brought out as Bulletin, 1923, No. 10, but the Bureau of Education, is in general an indictment of the general inadequacy of the present system. Of the sanitation of urban and village schools, the statement is made that "sanitation is deplorable, toilet rooms dirty and poorly ventilated. It is only fair to say that in some towns the sewer service is poor. This does not, however, excuse the unspeakable filthy conditions found in some toilet rooms. The sanitary conditions, at high noon, in the dairy barns of the agricultural high schools visited are better than in the toilet rooms of ninety per cent of the schools investigated.

Farmers' Bulletin No. 1354 of the U. S. Department of Agriculture is a brochure on "The Yellow-Fever Mosquito," prepared by L. O. Howard, chief of the Bureau of Entomology. The work is fully illustrated and makes interesting reading.

The study made of medical education in the United States during 1920-1922, by the Council on Medical Education and Hospitals of the American Medical Association is brought out as Bulletin No. 18, Bureau of Education, 1923, by the Bureau of Education over the signature of N. P. Caldwell, M.D.

New Books on Vital Statistics

The summer of 1923 has been unusually prolific in the production of important works on Vital Statistics. With the three books reviewed below, with the new edition of Whipple which appeared a year ago, and with the revision of Newsholme's English classic, promised for the near future, the shelf devoted to this field of public health will be well stocked.

"Statistical Methods," by Truman L. Kelly' is primarily for advanced workers in the statistical field who use such methods as a device to portray the facts of their group investigation; and particularly for those who resort to mathematics to aid in discovery of new truths. The book treats the subject of statistical methods logically and on a sound basis; including graphics, dispersions, probability, curve fitting, measures of relationship, correlation, and special problems. It should be very useful to serious workers in statistics, because

of its clear presentation of the underlying mathematical principles and even perhaps to the mathematician for its treatment of various theoretical phase of the subject.

A work which will prove of vital interest to a wider group of physicians and sanitarians is the "Introduction to Medical Biometry and Statistics," by Raymond Pearl.¹ If we do not always agree with Professor Pearl we always follow his brilliant and stimulating researches with keen interest and profit and this fruit of his teaching experience will prove of inestimable value. The book begins with an admirable review of the landmarks in the history of Vital Statistics and reveals the fact that Pearl (like Kelly) is an ardent disciple of Karl Pearson. After a helpful treatment of the mechanics of handling statistical data and representing them in graphic form the book gives us perhaps the clearest and most effective presentation available for the biologist of the probable error concept, and the measurement of variation and correlation, illustrated throughout with data from the researches of the author. An appendix presents a valuable table of specific death rates by sex and age and cause for the Registration Area for the year 1910. This book should be invaluable for every student and practitioner of vital statistics.

The third book on our list, "The Principles of Vital Statistics," by I. S. Falk' is the outgrowth of a course given by the author to students in the public health nursing course offered by the New Haven Visiting Nurse Association in cooperation with Yale University, and has an even wider appeal than either of the others. It deals with the results rather than with the methods of vital statistics and the purpose of the book is "to introduce the student to the subject of Vital Statistics, to describe the more important procedures and sources of information which are commonly utilized in statistical inquiries, to indicate certain outstanding evidences and conclusions which statisticians have derived and which are of interest to students and workers in public health, and to discuss briefly certain cautions which the untrained statistician must observe in the treatment of vital statistics." Dr. Falk has prepared the first satisfactory text on vital statistics simple enough to be used by students lacking a mathematical background and has gathered together an unusually valuable collection of concrete illustrative material.

The book is written with unusual clearness and in places with real literary quality. For the public health worker in general, as distinct from the professional statistician, it is perhaps the best book we have; and even the student and specialist in statistics will find it a useful supplement to Pearl's treatment of fundamental theory.

1. Macmillan, New York, 1923, 390 + xi pp.
2. W. B. Saunders Co., Philadelphia and London, 1923, 379 pp.
3. W. B. Saunders Co., Philadelphia and London, 1923, 258 pp.

A Vindication of Vivisection

A second edition to which important additions have been made appears in "A Vindication of Vivisection," title of a brochure edited by Francis A. Tondorf, S.J., Ph.D., and being a compilation of a course of lectures on animal experimentation by such men of authority in medical and other sciences as Simon Flexner, William Creighton Wood, William H. Arthur, Thomas S. Cullen, George Tully Vaughan, George B. Foster, and others. The work completely offsets the stupid and stereotyped arguments offered in opposition to biological methods of investigation.

BOOKS RECEIVED

- SOCIAL PROBLEMS AND SOCIAL POLICY.** By James Ford, Ph.D., pp. 1027, Ginn and Company, Boston, 1923.
- PROCEEDINGS OF THE NATIONAL CONFERENCE OF SOCIAL WORK.** Published for the National Conference of Social Work by the University of Chicago Press, Chicago, Ill., 1923 (pp. 566).
- BLOOD CHEMISTRY. COLOMETRIC METHODS.** for the General Practitioner With Clinical Comments and Dietary Suggestions. By Willard J. Stone, M.D., pp. 75, Paul B. Hoeber, Inc., New York, 1923.
- DISEASES OF THE SKIN.** By Richard L. Sutton, M.D., LL.D., pp. 1214, C. V. Mosby Company, St. Louis, Mo., 1923.
- AN INTRODUCTION TO THE STUDY OF MENTAL DISORDERS.** By Francis M. Barnes, Jr., M.A., M.D., pp. 295, The C. V. Mosby Company, St. Louis, Mo., 1923.
- NERVOUS AND MENTAL RE-EDUCATION.** By Shepherd Ivory Franz, pp. 225, The Macmillan Company, New York, 1923.
- PARENTS AND SEX EDUCATION.** For Parents of Children Under School Age. By B. C. Gruenberg, Ph.D., pp. 100, Published by the American Social Hygiene Association, New York, 1923.
- INDIVIDUAL GYMNASTICS. A Handbook of Corrective and Remedial Gymnastics.** By Lillian Curtis Drew, 2nd Edition, pp. 290, Lea and Febiger, New York, 1923.
- FOOT KNOWLEDGE: WHAT YOU OUGHT TO KNOW ABOUT YOUR FEET.** By Herman W. Marshall, M.D., pp. 150, Boot and Shoe Recorder, Boston, 1923.
- THE CARE OF THE BABY.** By J. P. Crozer Griffith, M.D., pp. 478, W. B. Saunders Company, Philadelphia, 1923.
- THE PRINCIPLES OF VITAL STATISTICS.** By I. S. Falk, Ph.D., pp. 258, W. B. Saunders Company, Philadelphia, 1923.
- PROCEEDINGS OF THE CONNECTICUT STATE MEDICAL SOCIETY, 1923, 131st Annual Meeting Held at New Haven, May, 1923, pp. 400.** Published by the Society.
- RHUS. DERMATITIS: ITS PATHOLOGY AND CHEMOTHERAPY.** By James B. McNair, pp. 298, The University of Chicago Press, Chicago, 1923.
- PUBLIC HEALTH IN THE UNITED STATES.** By Harry H. Moore, pp. 557, Harper & Brothers, Publishers, New York, 1923.
- CHRONIC INTERNAL STATIS: A RADIOLOGICAL STUDY.** By Alfred C. Jordan, pp. 230, Oxford Medical Publications, George H. Doran & Co., New York.

Bridgeport Department of Health Laboratory

(Continued from page 857)



Floor plan of the Laboratory of the Department of Health, Bridgeport, Conn. The layout is planned with due regard to working convenience.

scopical examination, blood counts are made, examinations are made of gastric contents and urinalyses are carried on as routine.

(3) *Examinations of water.*—A constant check is kept on all public and private water supplies in the city. Examinations are also made of the waters of private swimming pools.

(4) A considerable part of the division's time is devoted to the examination of milk samples. Each milk sample is examined for bacteria count, for total solids and for fats; whenever the results from total solids and fats indicate added water examination is made with the dipping refractometer.

(5) *Miscellaneous work.*—Among the miscellaneous functions of the laboratory are the examination of food supplies, the analysis of liquors for the police department, the analysis of grease and tankage for the municipal reduction plant and the distribution of supplies to physicians.

The laboratory staff consists of a director, a bacteriologist, a chemist, two laboratory technicians, a clerk, and one other person who assists in the general work of the laboratory. It has been the policy of the Board of Health Commissioners to appoint as director of the laboratory only per-

sons whose academic and scientific education and preliminary training have fitted them for the responsibilities of the position. The laboratory has had but two directors. In each instance she has been chosen for her personal qualifications as well as for technical and scientific training. The director has entire freedom to organize and plan the work of her division. All orders for new material and equipment originate with the director, although purchases are made subject to the approval of the health officer and daily reports are made to him. The director supervises and plans the work of the various members of the laboratory staff and all questions of departmental routine and procedure are referred to her for adjustment. The director is responsible for the expense account of the division and for the accuracy of its records and reports.

The bacteriologist is responsible to the director for the examination of all specimens for diagnosis in diphtheria, tuberculosis, gonorrhea, Vincent's angina, etc., for the examination of milk sediments

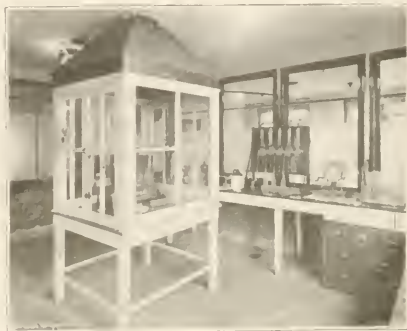
for microorganisms, for the carrying out of the Widal tests, for blood count and blood cultures, for animal inoculation, for typhoid plating, for the examination of urine sediments, the interpretation of the Wassermann test and many other duties. Like the director the bacteriologist was chosen for her aptitude and fitness for the work and for having had scientific training and preliminary experience fitting her for her position.

The chemist and assistant bacteriologist are responsible for the staining of all slides, for the smearing of sputum, for the transplanting of all permanent cultures and for counting milk plates. The chemist makes all water analyses, analyzes liquors, and food samples of other kinds, and is responsible for the preparation of stains, media,

and reagents. She carries on as well those analyses of greases and tankage made to check the by-product output of the municipal reduction plant.

Laboratory Technicians

There are two technicians employed in the laboratory. Neither of these had previous experience in laboratory work. They were chosen by the director from among suitable applicants and have been trained by her for the work they have to do. It may not be amiss here to state that this plan has proved very satisfactory indeed. The



Room for chemical analyses. Reserve room on other side of partition.

first technician is responsible for the smearing of all diphtheria cultures and is under the direction of the chemist for the preparation of diphtheria media. She is also responsible for the routine chemical analysis of urine, for the preparation of all outfits going out to the culture stations, and for keeping the milk records on the charts. The second technician has the care of the culture stations under his charge, the work of milk analyses, the plating of milk and the chemical analysis of milk. He also has charge of the animals and the daily collection of specimens from culture stations.

The clerk has general charge of the laboratory office, the entering of specimens, the care of files and records, and the reports which are made to physicians either by letter or over the telephone.

There is also one laboratory assistant or person of all work who washes the glassware, does odd jobs about the laboratory and gives a helping hand when asked.

Functional Organization

So much for the laboratory lay-out, its equipment, working force and functions. To maintain the laboratory for the year 1922 there was expended \$9,230. During this period 34,986 examinations and analyses of various sorts were made. Not long since some one tabulated laboratory costs of certain cities on the basis of cost per examination. Bridgeport's experience would give a per examination cost of approximately twenty-six cents. This, however, would seem to be rather a crude method of arriving at the efficiency of a laboratory or for that part of its value to the community; it means little other than so many examinations were made and so much money expended in making them.

The laboratory comes into contact with so many of the other activities of the health department that it is to say the least, difficult to determine a graded standard by which its true worth may be estimated and given proper valuation. We know that the expenditure of a certain sum of money rightly directed will lessen the deaths among the babies of the city and we can estimate the value of that work in terms of the infant death rate. No such standard is provided through which we may judge of the value of the laboratory's work. There is, however, one way in which the worth of a laboratory may be estimated and that the extent to which the services it has to offer are used by the community. Much of the lab-

oratory's work originates within the department of health, milk analyses originating from the division of milk inspection and control cultures originating from the division of communicable diseases are instances in question. But we find that a large part of the laboratory's work originates from the physicians of the city and that the measure of this work is constantly on the increase. The character of the work so carried on has largely to do with the control of communicable disease, properly a task in which the physician should be aided by the department of health, and with the laboratory helps which the department has to offer physicians in the diagnosis and control of disease not necessarily communicable.

We have felt here in Bridgeport and we have had no occasion to change our minds, that outside the routine work of the department, the value of the laboratory to the community is going to be in direct proportion to the confidence it inspires among the physicians of the community and the degree to which it is used by them in the control of disease and the relief of sickness and suffering.

We have tried to inspire this confidence among physicians. We have as advisory consultant to the laboratory the director of laboratory service in our largest hospital, a man of the highest professional standing and attainments. We have placed in charge of the laboratory persons of previous training and have chosen those who would inspire the confidence and the respect of the medical profession. No other factor has been allowed to influence the selection of a worker in our laboratory. And we have provided a laboratory thoroughly and well equipped with every facility for giving to the physicians of the city the aid they require or may request. And we think our plan is working out very well indeed and that our laboratory is a factor for good in the community.

Feeble-Minded and Insane in Ohio

Fifteen thousand feeble-minded persons in Ohio are in need of supervision, training, control and segregation according to the State Department of Public Welfare (Publication No. 22).

A five year program looking toward the solution of this problem (Publication No. 21) is offered by Dr. E. M. Baehr and Miss N. M. Thornburgh of the Bureau of Juvenile Research. Seventy per cent of those receiving

aid as dependents are either feeble-minded or show evidence of some other gross mental disorder. Seventy-five per cent of the delinquents and criminals are feeble-minded, psychopathic or insane in varying degrees. Thirty per cent of the inmates of the industrial schools, reformatories, and state penitentiary are mentally deranged to such a degree that their present place of confinement is unsuited to their needs. The recommendations provide for a new and complete training school for defectives capable of caring for 2,000 patients. This number should never be exceeded. The state has already appropriated money for the purchase of land for such institution and there should be no longer delay in securing a site.

It is recommended that the Bureau of Juvenile Research be expanded into a Bureau of Welfare Research and made the center of an intelligent campaign against feeble-mindedness and other mental disorders; representatives of this Bureau to be stationed in the industrial schools and penal institutions. Mobile psychiatric clinics should be provided. A return to the indeterminate sentence law is urged, the determining to remain entirely in the hands of the Department of Welfare.

Legal provision should be made for the voluntary commitment of the feeble minded and the limitation on the number of voluntary commitments now allowed for insane and epileptic cases removed.

An editorial in the *Lancet* (May 12, 1923, 5202, p. 961) reports severe criticisms by Haldane, Collis and others of Robson's paper on miners' nystagmus, previously abstracted in the Digest for July.

Twenty-five new playgrounds were opened in the District of Columbia, July 1, under the direction of the District Playground Commission.

Directory of Neurologists and Psychiatrists

The National Committee for Mental Hygiene is compiling a directory of all physicians in the country who are practicing neurology or psychiatry, with autobiographical information concerning each, so far as possible. It will be similar to the directory prepared by the committee during the war, but will bring to date the neuropsychiatric resources now available. This information will be used to meet the demand.

Eating for Health in the American Tropics

(Continued from page 863)

To prepare it begin as with *arroz abanda*. Then add a chicken which has been jointed and braised and enough water to cover it. Simmer until cooked, remove the chicken, season the liquor with Spanish saffron and cook the rice in it. Serve on a large platter with the yellow rice as a base and the chicken pyramided above. Decorate with pimiento. Sometimes mushrooms, olives, and shellfish are added, in fact almost any liberties in this direction may be taken if the basic formula is adhered to.

Game birds, ducks, snipe, swan, wild pigeons, wild turkey, and pheasant, are frequently obtainable and are very good. The American custom of eating turkey at Thanksgiving and Christmas is taking hold in Central and South America and the domestic variety is being produced in increasing quantities.

Eggs are usually plentiful and cheap. It is an amusing sight to see an old egg woman wrap her hand about an egg, hold it in front of one eye, peer through it at the sun and solemnly announce its authentic freshness. Nobody ever heard of an egg failing to pass this censorship, but the ceremony is always a part of the sale. Cold storage eggs are almost the only ones obtainable in certain tropical ports and many of them are veritable museum specimens. When scrambled with cheese or canned tomato their antique flavor is considerably disguised.

Oranges peeled to the pulp, impaled on forks and imbedded in ice are an almost universal breakfast dish "on the lap of the line" and pineapple of exquisite quality often closes a dinner. Here it should be interpolated that in most tropical countries breakfast as we know it is non-existent. The first meal of the day, *desayuno* in Latin-America, consists of fruit, a hard roll or tortilla, and coffee extract of the general potency of hemlock juice but well diluted with hot milk. Breakfast (*almuerzo*) is served at eleven o'clock and runs the gamut from soup to small black coffee. At seven o'clock comes dinner (*comida*), a repetition of breakfast plus dessert (*dulce*). Supper (*cena*) is only served once in a while and is a festal occasion beginning about midnight with

weird sausages eaten with jam and ending with an ice (*hielado*) of sourop (*gannabano*), cashew (*marañón*) or star-apple (*caimito*). Grape fruit, mamey apples, mangoes, mangosteens, cherimoya (a sort of vegetable library paste), and anona are all used as breakfast fruits. Mangoes are a laxative and should be avoided during outbreaks of intestinal disorder. They should be peeled with a knife before eating as irritating substances in the rind produce a very disagreeable eruption on the lips, face and fingers of susceptible persons. Papaya, a sort of melon growing in great profusion on a tree, is a most useful fruit. Before using, it is "bled" of its milky sap by making a series of shallow incisions through its rind and allowing it to stand for a day or two. This fruit is reputed to contain a vegetable digestant, papain, which is not unlike pepsin in its action. The natives believe that tough meat may be rendered tender by wrapping it in the leaves of papaya. This fruit is used as are melons at home or cut into balls or cubes and served with French dressing.

Alligator pears (*aguacate* or *avocado*) in many places, for example in Mexico and Tumaco, Colombia, are delicious and may be used as breakfast fruit or salads. Bananas, like the poor, are always with the tropical dweller and they vary in color and size from the little canary yellow finger banana to the gigantic dark red variety. They have the decided advantage of being protected against contamination by their rind or peeling. A delicious way of cooking them prevails in Kingston, Jamaica. They are peeled, laid in a shallow, greased pan, lightly sprinkled with sugar, baked, and served with a cocoanut milk, not cocoanut water, that's another thing, but the milk obtained by treating grated cocoanut with boiling water, placing the scalded cocoanut meat in a muslin bag and squeezing out the milk. Served icy cold imbedded in the banana jelly which is produced by the baking they make a splendid dessert. Plantains are a sort of left-handed cousin to the banana and are classed on tropical menus as vegetables. Boiled and then baked or fried, they are palatable and easily digested.

In some tropical places good potatoes are produced locally. In others they are imported and the supply at times runs out. Sweet potatoes have a high carbohydrate content and a certain amount of sugar and in some localities are plentiful. The so-called "wooden-potato" or yam is a homely looking root which on section is either white or yellow. The former variety is preferred by Americans and when thoroughly boiled and put through a potato ricer closely resembles the Irish potato, for which it forms an excellent substitute. The same may be said of breadfruit and manioc or cassava also known as yuca. It should be borne in mind that *yuca dulce* is the variety to be used in this way. *Yuca amarga* contains prussic acid and must be washed thoroughly before it is grated, sun-dried and sold as tapioca. Yampi resembles them and is a useful ingredient of soups and stews.

Digressing again, it may be remarked that soup and its more solid cogenor stew, is a staple portion of most tropical diets and one on which much thought may be profitably expended. They are highly nutritious, easily absorbed and a sovereign remedy for fatigue. Far from being too hot for a warm climate, their fluid heat is very grateful to the diner. The native soups may contain almost anything from vegetables and meat to spices and poached eggs. Usually their fat content is high, in fact most native dishes abound in grease since butter is rarely used in native homes and fats must be secured in other ways. The American housewife will know how to eliminate superfluous fats from soups and stews but this should not be done too rigorously since most of the local butters are not above sanitary suspicion and the tinned imported products frequently require working over to eliminate their axle-grease-like flavor. Some of the Danish butters, however, are really good and not too expensive. Cold storage butter from the States is rather temperamental, one time being first quality and the next disagreeably flavored. In many places the only fat easily obtained is cocoanut oil. If not rancid, it is not at all bad although the appetite may

tire of its characteristic taste.

A large variety of squashes and squashlike vegetables may usually be had. *Chocho*s or *chayotas* resemble the summer-squash in flavor and when boiled or served au gratin they are good food.

Beans are a basic part of the diet. Fresh string beans may usually be secured and in every market there is a wide choice of the numerous varieties of dried beans, peas, and lentils. The red bean is boiled and served with fluffed or fried rice. The latter is prepared by cooking the rice with fat or olive oil and a little water in an iron pot without stirring. The bottom layer is allowed to brown and when the rice is removed, care is taken to extract this layer intact. When the rice is placed in the serving dish this brown cap surmounts the whole and is considered a great delicacy. Dried beans are frequently beaten to a pulp with a pestle and mortar, moistened with a little soup stock and one well beaten egg. The mass is then thoroughly beaten much as we do in making beaten bread. The secret of this dish lies in the amount of man-power and time put into the beating. The mass is then patted out into thin cakes and cooked in boiling deep fat as is a doughnut. The cakes puff up like a pouter pigeon and are dainty, crisp, highly nutritious food.

Tortillas are made in much the same way. One buys fresh, wet-ground corn meal called *masa* at the market and sprinkles a little finely ground cheese on it. Thin cakes are patted out of this, being well beaten between the cook's palms which are dipped in cold water at frequent intervals during the process. The cakes are dropped into deep fat and if prepared properly they "rise." There is another variety of tortilla which is not raised, being cooked on a griddle much like our hoe cakes. Similarly, very thin cakes are prepared from cassava meal.

Coffee is served at practically every meal but it is not the beverage as we know it in the United States. The beans are given a blacker roast and in some places it is served as a black, syrupy extract which newcomers do not know how to use. There is always a tendency on their part to drink too much of it with resultant harm to the nervous system and the digestive apparatus. The seasoned tropical dweller only takes a little and that generally well diluted with hot milk. Coffee should be roasted in

small lots, just enough for a day or so, and ground immediately before using. In this way the aroma of the coffee is retained and the product greatly improved. Tropical coffee is almost universally dripped.

Chocolate is a highly nutritious beverage whose use is widespread in Hispano-America. Its color depends upon the length of time that the cocoa beans from which it is made are fermented before milling. It is ordinarily purchased in the form of little cones, each of which contains enough for one large or two small cups of chocolate. To prepare it properly, put the requisite amount of milk and chocolate and a little sugar in a sauce-pan, bring to a scald with constant stirring. Take it off the fire and beat it by rotating a notched stirring stick between the palms. Scald and beat again twice, adding one or two drops of vanilla.

Lack of Refrigeration

In most tropical towns it is considered infra dig for a white woman to carry a basket. An accompanying servant does that. This may create a temptation to purchase more than enough supplies of fresh foods for one day. This should be firmly resisted since the deterioration of food-stuffs is apt to be so rapid that no experienced tropical housewife will buy more than is currently needed and she makes it the invariable rule never to use left-overs. Refrigeration is a great problem in many places and even where ice is to be had, it is sometimes difficult. Screened "safes" hung in a breezy place out of the sun are sometimes used but it is better never to keep putrescible foods under these conditions.

Water may be kept in screened "ollas or jarros" which are made of unglazed clay and by the evaporation of water from their surface lower the temperature of their contents. All water of doubtful purity should be boiled before using. The large stone filters so frequently seen are worse than useless as water purifiers and may furnish breeding places for mosquitoes. Milk, except the tinned or dried varieties, also should be boiled since there are few tropical places where safe fresh milk is obtainable. A notable exception to this rule is Panama where market milk of high sanitary quality is produced. Goat's milk in places where Mediterranean fever does not exist is a good substitute for cow's milk but the danger of milk in the tropics is not so much

a matter of the milkee as the milker.

The tropical cook-house is frequently disheartening to the housewife fresh from the neat, orderly kitchens at home. Ants parade around it and cockroaches almost as large as mice skuttle about the shelves and floor. Flies sail in and out of the open windows. A barefooted, half-clad cook shambles listlessly about with her hair hanging wispily. She may speak no English or perhaps she has a whining dialect alleged to be our mother tongue but resembling not the language of Shakespeare. Sometimes the cooking is done in some shaded spot in the open; sometimes over a charcoal brazier set in a doorway; sometimes, as in Chiriqui, in a chimneyless room on a stone altar where burning hardwood sticks are being constantly advanced toward the cooking vessel from which they radiate; perhaps, as in Venezuela, there is a stone cooking table with small gratings let into the top beneath which burns charcoal fed in through holes in the edge of the table, perhaps it's a good old American cook-stove or range, or oh joy! oh rapture! a gas or electric range, as in Balboa.

The ants should be attacked with sodium fluorid and the cockroaches by a spray of pure carbolic acid one part and kerosene 5 parts. The kitchen should be screened and flies which gain admission because the cook will insist on keeping the screen door blocked open, "In order that the flies may have a chance to get out," captured by a sticky solution made by heating together castor oil thirty-five parts and resin sixty-five parts and applying hot to wires suspended from the ceiling or stretched across the room. This sticky mixture may also be spread hot on sheets of paper but a better way is to dip an old upholstery spring fastened to a block of wood with it. Wires which become covered with flies may be cleaned by dipping them in boiling water and lye or soda. Unceasing warfare and immaculate cleanliness is the price of freedom from insect pests in the tropics. Food and garbage must be promptly removed and if rats or mice get into the house they must be ruthlessly combated with traps and poison. Perhaps after a long period of exhortation and exemplification, the cook may be brought to a temporary realization of her duties in the keeping of a spotless kitchen. Her vocabulary knows not the word hurry and the impatient northerner who tries to accelerate her is attempting

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The very first box of Kotex usually forms a new habit of comfort and standard of convenience. Bring home a box or two—

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INEXPENSIVE, COMFORTABLE, HYGIENIC and SAFE — KOTEX

the impossible, almost the suicidal. But she has no eight hour schedule, her wages are low, she does not fret about any free-born rights, and household engineering to her is a closed book. This explains why the time element is so little considered in the preparation of the dishes described in this article.

There is a tendency to overbalance the diet in the tropics in the direction of the carbohydrates and in some places the roughage element is too low. On the other hand in many localities there is too great a preponderance of meats. A balanced ration is just as necessary as in the Temperate Zone. There is no particular reason why the Nordic should not have just as good food in the tropics as elsewhere provided the housewife will study the food problem carefully and use brains and energy in its solution. Intelligent marketing and selection of menus, and cleanliness of servants, kitchen and utensils are of basic importance. The big element of healthful eating in the tropics though, is the energetic application of brains and ceaseless vigilance.

Radio Hazards

Considering the many people who are building and operating radio sending and receiving sets, the number of accidents has been small, but those that have occurred have been of such a serious nature that warning is not out of place. An admonition of caution and a statement of the possible hazards and means of avoiding them are included in a recent report of the Radio Hazards Committee of the National Safety Council.

"On the whole, the underlying causes of most accidents in connection with radio apparatus are ignorance and carelessness. Many persons, using radio equipment, do not know the dangers of the apparatus; others, conversant with hazards, forget them in their enthusiasm.

"The handling of antenna wires after they have become charged by falling on or touching high voltage power and light wires (or by those wires falling on the aerials) has resulted in severe shock and death. The collapse of antenna masts due to improper or insufficient guying has led to such cases as well as to serious falls.

"An outdoor aerial is not necessary for efficient reception of radio messages. The use of an indoor aerial eliminates contact with outside power and light wires and the hazard of climbing to unfamiliar places. A

lighting arrester, while not absolutely necessary, should be installed.

"Storage batteries have caused several accidents, due to the fact that after charging, expelled oxygen and hydrogen gases (an explosive mixture) have come in contact with an open flame or have been ignited by crossed wires. Spilling or leaking of electrolyte (usually sulphuric acid) has ruined interior furniture and caused severe body burns.

"There is ample current capacity in dry cell batteries to produce a fatal shock, but ordinarily the voltage is not sufficient to force this fatal shock through the body. Some 'B' batteries, however, have as high as 350 volts which would cause a severe and possibly a fatal shock to anyone coming in contact with both main terminals when making or breaking the connection. A good general rule for avoiding shock is to use one hand only and be sure the body is nowhere grounded.

"The sending station should preferably be located in a building of substantial construction and should derive the current necessary for operation from a source other than the supply to the building for other purposes. Where such stations have been located in private dwellings and apartment houses and secured their operating currents from the building supply lines, fire and accident hazards have sometimes resulted. The antenna should be located so that, should it fall, it would not touch any light or power lines.

"The poles supporting the antenna should be guyed in four directions, the guys should be provided with insulators and the poles should be located with respect to the edges of the building roof so that there will be no hazard of falling off the roof.

"The lead-in wire should be kept five inches away from all parts of the building. The same air space should be provided for all ground wires. Splices and joints in the antenna span and lead in wires, unless made with approved clamps or splicing devices, should be soldered. All antennas and lead-in wires should be of copper or approved clad steel not smaller than No. 14 B & S gage. The lead-in wires should enter the building only through non-combustible, non-absorptive insulating bushings.

"As protection to the transmission equipment from lighting, it is plain that a lighting arrester is not practical for sending sets. Radio engineers have recommended the installation of a double throw knife switch,

the specifications to correspond with the standard 60 ampere, 600 volt switch, with the exception that a slate base is not recommended.

"Overfusing a circuit or replacing a fuse with copper wire, pennies or other illicit methods is analogous to tying the safety valve of a boiler so it will not operate. In both cases, the protection which is depended upon to prevent accidents is removed. Such practice is indefensible.

"Generally speaking, fire insurance companies will not be affected adversely by the installation of radio receiving sets even with outdoor antennas. It is suggested, however, that those who wish to make certain of this point, call up their insurance broker who will either give verbal consent to the addition or will issue a radio permit endorsement for the fire insurance policy without charge or change in rate."

Intraperitoneal Administration of Antitoxin

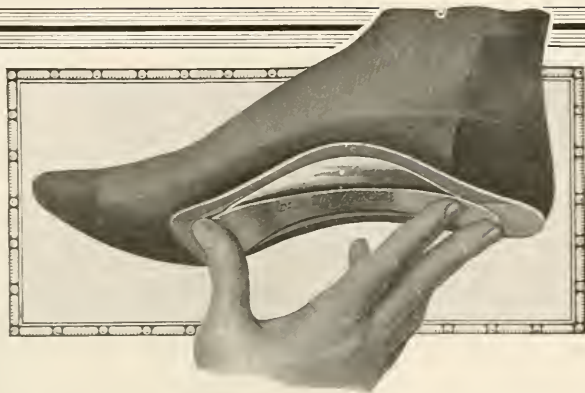
The intraperitoneal administration of diphtheria antitoxin has been suggested by Platon for use in selected cases among infants and young children. (*Arch. Ped., Sept. 1923, xl, 9, p. 575.*)

Absorption by the intraperitoneal route is not, of course, as rapid as absorption by the intravenous route but it is approximately five times as rapid as absorption following intra-muscular administration. Within an hour it is more than sufficient to neutralize the toxin in the blood in any case of diphtheria. Absorption by the intraperitoneal route is more rapid in infants than in older children and local discomfort is absent. This method is said to be particularly suitable for advanced cases where suitable veins for intravenous administration are lacking and in moderately advanced cases in which intravenous injection is not considered necessary or advisable but where more rapid absorption is desired than can be obtained by the intramuscular method.

Teeth as Portals of Infection

J. Mendel (*Ann. de l'Inst. Pasteur, Vol. 37, p. 537*) has succeeded, both with rabbits and monkeys, in producing tuberculous infection by inoculating tubercle bacilli, in some cases of relatively low virulence, into the pulp cavities of the teeth.

Automobile accidents cost the lives of 221 persons in New York state during the month of October.



To Relieve Weak Foot, Muscular and Ligamentous Strain

The symptoms of these conditions are tired, aching feet, tender heels, cramped toes, rheumatic-like pains in the legs and bodily fatigue. For such cases Dr. Scholl's Foot-Eazer should be prescribed. It is light in weight, self-adjusting, comfortable to wear and gives just the right pressure at the right spot. By removing the unnatural strain, which is always present in cases of weak foot and incipient flat-foot, Dr. Scholl's Foot-Eazer gives immediate and lasting relief.

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Food Legislation and Inspection

(Continued from page 870)

it through the usual channels of trade, although a small portion could have been used for food purposes if cooked within a few hours.

Since 1917 other changes have been made in the character of foods examined and fewer examinations for decomposition have been necessary.

Unusually able men have in the past been connected with the analytical force of the department. These include the late Dr. Edward S. Woods, the celebrated toxicologist and medico-legal expert, the late Dr. Charles Harrington who at the time of his death, was secretary of the state board of health and professor of hygiene at the Harvard Medical School, the late Dr. Goessman, professor of chemistry at Massachusetts Agricultural College and former president of the American Chemical Society. The late Dr. Charles P. Worcester, analyst at the time of his death, was also secretary of the Harvard Medical School. The late Albert E. Leech, author of "Food Inspection and Analyst," was analyst of the board for ten years, and at the time of his death was the chief of the Denver Laboratory of the United States Department of Agriculture.

In the early period of the work, there were four analysts part time, and three inspectors. In 1892 there were one analyst part time, one assistant analyst and three inspectors. In 1898 there were one analyst full time, one assistant analyst, and three inspectors. In 1907 there were one analyst, three assistant analysts, and four inspectors, and today there are one division director, who is the chief analyst, five assistant analysts, and seven inspectors, as well as a clerical force of six.

The increase in force is not due to any increase in adulteration of food, but is due to laws made to control possible sources of adulteration and to prevent the manufacture of adulterated food. It is also due to added duties imposed by legislation, such as the cold storage law, slaughtering laws, bakery law, the law relating to the sale of mattresses, and, recently, the pure coal law.

The Eighteenth Amendment of the Constitution has played a considerable part in the increasing of the work of the division. The law requires the department to make, free of charge, an analysis of any liquor submitted by police or certain other officials provided that the results of the analysis

will be used for prosecution in state courts. Under this law there are now submitted to the department nearly six thousand samples of liquor per annum, while prior to July 1, 1919, such samples seldom exceeded one hundred per annum.

A word regarding prosecution may be of interest. In Massachusetts any citizen can enter a complaint in court for violation of a criminal statute, and he has the right to appear in the lower court, as the representative of the Commonwealth. This procedure is used in the prosecution of all cases the food and drug division handles; and the employees of the division, none of whom are lawyers, enter and try these cases, not in their official capacity, but as citizens of the Commonwealth. Only in a very unusual case is an attorney hired, there being but five such cases in the past nine years. About ninety-five per cent of the cases are disposed of in the lower court. In instances where appeals are taken, the case is handled by the district attorney.

The food laws have been of value to the citizens of the United States. They have cut down the sale of adulterated foods and drugs, they have reduced unfair competition in trade, they have been instrumental in preventing spoilage in food transportation and disposition, and have been of benefit to those merchants who desire to sell articles of superior quality.

Science Outstrips Medical Teaching

"The growth of medical sciences in the last fifty years has radically changed the prerequisites, subject matter, methods, duration, and cost of medical education," states a report issued by the Rockefeller Foundation. "Knowledge and the technic of its application have increased enormously. Demands on the time and energy of teachers have grown heavy and exacting. Expenses for laboratories, teaching hospitals, salaries, and supplies have mounted rapidly. Under the new system apprenticeship systems have disappeared." Nevertheless, private practitioners still constitute the great body of clinical teachers in medical schools the world over.

The new conditions, condensing the report, have produced the typical modern centre for teaching and investigation—the unified university

medical school, in a stimulating scientific and cultural environment, controlling its laboratories and hospitals, under the direction of full-time staffs. Few university schools in the world have reached or approximated this standard. The tendency, however, in all advanced countries is toward this university type. Traditional preconceptions, the vested interests of practitioner professors, unfamiliarity with new ideas and methods and lack of funds are the more obvious obstacles to progress.

To attempt to teach the medical student all that is known about health and disease is, on the face of it, absurd, the writer points out. There is complaint already that too much is being forced upon him and that he has no time to think for himself. It is agreed that an undergraduate medical course should not seek to give a complete education, but to ground the student in fundamentals of knowledge and technique and to inspire in him a scientific spirit and a sense of social obligation. These necessary limitations are resulting in the development of graduate teaching. The time is coming, the writer predicts, when all surgical and other specialties and advanced laboratory work will be taught as graduate subjects.

The raising of standards, with consequent lengthening of the medical course and its increased cost to both individual students and to society, gives rise to a number of serious questions, the article sets forth. Some advocate shortening the combined elementary and secondary school period by two years, to reduce the age at which a physician may begin his career. Another suggestion is that more scholarships be granted to promising students. There is agitation for a shorter, less expensive type of training to maintain the supply of general practitioners, on the theory that many superficially trained doctors will settle in rural districts which now lack resident physicians. Many foresee a system of local hospitals serving surrounding areas by out-post dispensaries and visiting nurses.

While some differentiation may be expected between physicians who go into general practice immediately and those who pursue graduate studies in the specialties, there is no reason to suppose that standards of medical education will be lowered.

Constipation ~

In obstinate or recurring cases, recent clinical evidence indicates the value of fresh yeast

EVERY physician has had numerous unsatisfactory experiences with the ordinary laxative drugs—from cascara to mercurial purgatives.

While in no sense a substitute for proper exercise or fresh vegetables, Yeast is a highly valuable dietary adjunct in cases of obstinate or recurring intestinal inactivity.

It is not habit forming. It produces no digestive disturbances. It can be prescribed as a part of the regular daily diet for as long a period as may be necessary.

Recent investigations on the effects of fresh Fleischmann's Yeast showed that it acts as a bowel *regulator* rather than as a purge, since the "normal"

subjects tested experienced no increase in weight or frequency of stool, while "the condition of every individual who had any degree of constipation was improved."

Best results are obtained by eating one cake half an hour before a meal or the last thing at night—followed by a glass of water. If desired, the yeast may be first dissolved in water, milk, or fruit juices.

A new authoritative book: written by a physician for physicians. This brochure discusses the manufacture, physiology, chemistry, and therapy of yeast. A copy will be sent you free upon request. Please use coupon addressing The Fleischmann Company, Dept. Y-26, 701 Washington Street, New York, N. Y.

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Report of Progress in Public Health Laboratories

(Continued from page 873)

for its object the improvement of different phases of the work so that standards may be raised and maintained at a high level throughout the various departments. Continual study is directed towards perfecting the procedures used in the production and standardization of the therapeutic and prophylactic products sent out from the laboratory. Classification of meningococci, typing of pneumococci and the production and standardization of antimeningococcus and antipneumococcus serums are included in this work as well as investigations on *B.botulinus* and botulism before botulinus serum was produced, standardized, and distributed. Studies in hydrogen-ion concentration as used in the adjustment of media and in antitoxin plasma have engaged considerable attention.

It has been necessary to investigate and standardize some of the reagents and materials used in the laboratory. Thus, the production of amboceptor in a mule has been of great practical value. Much study has been expended on the improvement of the complement fixation test for tuberculosis and has recently yielded results which should make this test an extremely valuable diagnostic aid in public health work.

Certain investigations have been undertaken in connection with outbreaks of diseases in different parts of the state. Thus, during the last two or three years, extensive work has been done on poliomyelitis, influenza, and infectious jaundice.

In addition, research has been carried on in some of the fundamental processes of infection and immunity. This includes studies on the coagulating properties of blood, on the effect of osmosis upon the movement of leucocytes and the action of toxins on leucocytes.

Many other city and state laboratories are carrying on equally important research problems to a greater or less degree than those which have been cited as examples; but the subjects above mentioned indicate the importance and diversity of problems which confront different communities. The laboratories of the larger cities have been more actively engaged in research as the funds and personnel of the smaller cities are usually inadequate for this important service.

Attention has been directed to the helpful researches in Massachusetts, New York, and Michigan. The development of parasitological technic, as a routine measure in California under the able direction of Dr. Kofoid is also of interest, particularly in view of the discovery of several cases of amebic dysentery in a small area of Connecticut and the request by physicians for diagnostic assistance from the state laboratory. According to the thirty-seventh biennial report of the State Board of Health of California, 1922, the number of routine examinations for intestinal parasites in stools received from various physicians in the state and from infirmaries, hospitals, and health centers increased from 3,572 in the year 1920-21 to 6,431 in the year 1921-22 and the number of persons examined from 784 to 1,730.

Movable Laboratories Utilized

Certain other states, as Indiana and Michigan, have profitably utilized movable laboratories in addition to the central laboratory for touring the rural areas and resort sections. Dr. King, state health commissioner of Indiana, writes that a truck so arranged as to carry all the equipment for a water and milk laboratory, is at present used in connection with a sanitary survey which the state is making of the lake resorts of northern Indiana. The first location of this movable laboratory was at Warsaw, the laboratory being established in rooms connected with the office of a group of physicians. From this laboratory as a center a survey was conducted over an area from fifteen to twenty-five miles in each direction and included some eight or ten lakes. In addition to the laboratory force two field inspectors are assigned to the work, one for collecting samples of water and milk and the other for making official inspections of food producing and food handling establishments. In addition to this work a complete survey is made of sanitary conditions, including garbage and sewage disposal. Orders are issued by the field inspectors wherever in their opinion such orders are indicated and following the compilation of the survey, orders are issued by the State Board of Health covering those things that cannot be handled by a field inspector.

Following the survey of the lake resorts, Dr. King states that it is planned to make surveys of rivers and a large number of small summer resorts and recreation places that are being developed all over the state.

In Michigan, according to a statement in the *Engineering News-Record*,¹¹ it was concluded by officials of the health department that "Trained men equipped with a portable laboratory for making examinations of water and food supplies was the best means of looking after summer resort sanitation." In 1921, four men with a motorized laboratory and roadster inspected 123 resorts and hotels in ten counties.

Opportunities for research are few in the hustle-bustle of the routine laboratory. At the same time it is felt that such work is exceedingly stimulating to the average worker and will result in considerable benefit to all concerned. Perkins,¹² in an admirable review of the field, points out the value of research and the actual need of that forerunner of applied knowledge. He also suggests the possible cooperation of a public health laboratory with a university staff, to the probable advantage of both parties and the world in general.

The subject of standardization is very often agitated and the need for something along that line is shown by the recent investigation by Dr. Slack of the various methods employed for the same kind of operation in different laboratories in and near Boston.¹⁶ He concludes that some method of supervision or of mutual association of diagnosticians should be devised to insure the use of uniform technic and as a control on the accuracy of the work. The woful lack of certainty in diagnosis before, and the fairly good correlation of results after simple standardizations are strong arguments for uniformity in technic. Of course it is true that some bacteriologists are happier when they employ their own modifications to a given method, and perhaps that fact is of value sometimes in the promotion of research.

In New York State,¹⁷ standardization is emphasized, while the Division of Laboratories and Research is fostering self-reliant country and small city laboratories rather than attempting



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to do all the diagnostic work for the whole state in the central laboratory. Considerable care and supervision is given, however, to this whole subject of uniformity in technical methods and to the types of personnel employed in state laboratories. Needless to say, there should always be the closest co-operation between state and municipal or county laboratories.

The keynote of the whole public health laboratory problem is of course to have efficient personnel, and then to get the physicians, milk inspectors, and others to utilize the advantages of the laboratory by sending samples^{1a} and by becoming educated to a correct interpretation of reports. This is one goal toward which we should direct our course in the future, more vigorously than in the past, for the pioneer work in demonstrating the importance of such procedure has already been done. A great mass of the public, too, more than we usually realize, become interested in public health activities through the channels of the laboratory, as in milk and water reports, special disease studies, and the like. This fact is illustrated in a weekly newspaper of a small town which repeatedly during the past summer published letters from the lay people, and an editorial, requesting reports on the water supply of the community.

It is sometimes necessary and often as difficult, not only to educate the general public, but also the common council, by whose grace the health department usually receives its annual budget. Not infrequently, the members of this important body have little idea of the function of a public health laboratory, or of the type or scope of work performed. Sometimes this difficulty may be overcome by special efforts on the part of the laboratory health department staff to engage the interest of the council members in this branch of work. This was illustrated by the visit of a councilman, upon the health officer's invitation, to a city laboratory in charge of the senior author. As the visitor was shown the weekly records and various laboratory operations in progress, he manifested surprise, in spite of the fact that he was a physician, that so many different types of work which had a direct bearing on the health of the community could be undertaken in a small laboratory. His interest subsequently stimulated wider use of the facilities available, increasing the volume and scope of work as well as official support of the laboratory. This experience might not be applicable elsewhere, of course, but it is believed that laboratory workers have definite

opportunities, especially in small cities, which are not always recognized.

Lastly, we cannot urge too strongly the importance of trained personnel, and standardization of both laboratory work and technic. Much depends upon the laboratory findings in these days of modern medicine, and physicians, as well as the public, may expect reports deserving of confidence, as a result of work skillfully performed.

1. "The Laboratory in the Service of the State," by C. E. A. Winslow, A. J. P. H., 1916, vi, No. 3, contains an interesting historical review of public health laboratories.
2. Hiseock, Ira V., and Hiseock, Margaret Scoville; Chapter on Public Health Laboratories, Report of Committee on Municipal Health Department Practice, to be published by the U. S. Public Health Service, 1923.
3. Gage, S. DeM., and Earle, Edith; Diagnostic Chemistry as a Routine Function of a State Laboratory, A. J. P. H., 1922, xii, No. 8.
4. A glimpse of the salary situation is found again in the study of the eighty-three large cities where salaries for the full-time chief in forty cities in 1920 ranged from \$1,500 to \$6,500, with a median salary of \$4,400, while the average salaries of subordinates was considerably lower.
5. The work of the Bureau of Laboratories during 1922 is described in the City Department of Health monthly bulletins for April and May 1923.
6. Zingher, A., and Soletsky, D.; An economical intracutaneous method for testing virulence of diphtheria bacilli, Jour. Inf. Dis., Jan., 1915, xvii, 455.
7. Havens and Powell; The use of the Original Diagnostic Culture for the Determination of the Virulence of Diphtheria Bacilli, Amer. Hygiene, Jan., 1922, ii, 224.
8. Force and Beattie; An Intracutaneous Test for the Virulence of Diphtheria Bacilli in Field Cultures, Amer. Hygiene, 1922, ii, 490.
9. Bull and McKee; The whole-culture method of testing virulence of diphtheria bacilli, Amer. Jour. Hyg., 1923, iii, 103.
10. Griswold, Don M.; Jour. Lab. and Clin. Med., 1923, 1, p. 189.
11. Amer. Jour. Syphilis, Jan., 1922.
12. Michigan Department of Health, Reprint Series, 2-11.

13. Fox, James C., and Sanderson, E. S.; American Jour. Syphilis, Oct., 1923.
14. Brockway, W. C., and Stucky, J. C.; Eng. News-Record, lxxxix, Sept. 14, 1922, p. 430.
15. Perkins, Roger G.; Public Health Laboratories, N. Y. Med. Jour., April 15, 1916.
16. Boston Medical and Surgical Journal, Vol. 187, Nos. 12, 13, 14 and 15.
17. J. A. M. A., 1921, lxxvii, 512.
18. It has been found that a well equipped laboratory can make about one hundred twenty-five examinations of all kinds per one thousand population annually at a cost of not over forty cents per specimen. Several laboratories are now making more examinations than this at a lower cost, but the above figures also allow for considerable research.

A unique school of nursing is announced by the *Lancet* as being conducted at the Pirquet Clinic, Vienna, where physicians are given instruction in the everyday care of the child. Four physicians are entrusted with the care of the ward, doing all the nurses' work. They must wash, bathe, and tidy the children; serve their breakfast; give them medicine; make temperature charts; and prepare for the morning rounds of the professor. The night duties, at present performed by a nurse, will soon be allotted to the student physician who must serve two months in all at the school. The new curriculum proposes a year of internship for the physician before he may engage in the practice of medicine, and attendance on this school is made compulsory. It is proposed that hereafter the physician and the mother will no longer work at cross purposes because the physician is ignorant of domestic exigencies.

Garbage Disposal in Central America

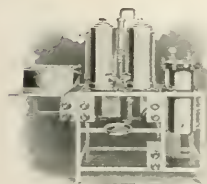


Garbage disposal in the capital of one of the Central American republics. On the whole this is better garbage collection and disposal than is usually seen in the land where the "gallinaza" or buzzard is the unofficial and unpaid scavenger. It was found at Panama, P. F., that the burial of garbage was a cheap method of disposal and when the garbage was well sprinkled with a "Invidette" of phenol and resin soap as it was put into the excavation, there was relatively little fly breeding. Reduction and incineration entail a considerable expense and some method of treatment in fly-proof fermentation cells would be far less attractive to rodents and flies.

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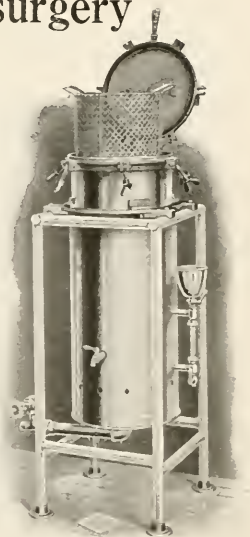
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NEW ORLEANS

The Adolescent Girl Becomes a Health Asset to the Home

(Continued from page 878)

Interesting enough courses, one may say, but are they used? Are the children interested, and do the parents approve?

Taking these up in reverse order, we find if we avoid the question of sex hygiene, a subject not at present ready for public teaching, parents like the idea. We also find that all churches approve.

As to interest, one only needs to go into one of the classes, or, better to see the mothercraft group graduate, to find out how enthusiastic are pupils and parents as well. The mother instinct is strong in girls and, while dolls may be all right, how much more attractive is caring for a full-sized manikin as one would care for a baby. You know they even name the dolls. For example, one is called Rose Standish, another Adelaide Wood, and a third Polyanna Knowlton. Another proof of interest is the very definite evidence of knowledge at the completion of the course. That means interest by both pupil and teacher. It is because the mothercraft group most assuredly liked it that approval of this particular course is given. Material for similar courses is also good, well-planned, and satisfactory, as can be



Miss May Bliss Dickinson, director and founder of the mothercraft courses in the New Bedford Schools.

seen from the work of the Red Cross.

Regarding practicability. The girls in our groups apparently used the lessons about as fast as they were given as was brought out through certain essays, one girl practically taking charge of a baby for a week and with great success; another made use of the ideas for improvising and brought comfort to a baby who perhaps might have otherwise numbered among the summer mortalities. Actually the girls have seen the vision of real service through this work and to them it is far more interesting than mechanical work with mere dolls. As a matter of fact our chief trouble with mothercraft as demonstrated in our work in New Bedford was being unable to accommodate all who wanted it.

The two courses outlined, one infant welfare, the other home nursing, actually represent the solution of definite needs and in a public health program they fill a place which, if uncared for, will contribute to no small extent to the defeat of some of the strongest health programs. When the New Bedford method is used, the added factor of the support of strong interested organizations, gives further prestige to the work and to my mind success is the only word which properly describes such plans properly carried out.

The age is a practical one. Perhaps, after all, instruction in conserving human life may be more valuable than entire devotion to the muses.

involves for the nurse careful study of the situation in order to get hold of the outstanding problem. Usually the problem is complicated by the fact that in most country places the board of selectmen serves also as the board of health. They are busy men with little time for detail, without a trained agent, and it is not unusual to find confusion in the handling of communicable disease. Such was the condition at Deerfield when they employed a community nurse.

The large Polish population, with very little regard for quarantine laws and regulations, had so confused the health administration that after a few months it was not a difficult matter to persuade the board to adopt the communicable disease regulations as recommended by the department of public health. The writer was appointed as their agent. At the same time post cards were printed for the physicians to use in reporting cases. Once in contact with the family, in the first visit a plan is made for isolation and instructions are given for the care of the patient and the care of the family, the home placarded and regulation of quarantine explained.

The placing of placards had been rather dreaded as it seemed too bad to have the school children associate the nurse with sickness and being "shut in," but when after the physician had made a diagnosis of scarlet fever, one small girl said to her mother, "Anyway, the nurse will visit us and put a bright red card on our house," my fears were allayed of becoming unpopular because of these measures. Needless to say the mother did not feel quite so joyful.

The reported cases are the most easily cared for. It is the hidden and suspected cases that require the most careful work. This is particularly true when dealing with a foreign population.

Being health agent gives one the authority to say, "You must have a physician or the house will be quarantined." This results in a physician being called in to make a diagnosis. It also gives the authority for taking a culture on the suspicious looking throat of a school child. In this way several cases of diphtheria have been found. This would lead to embarrassing situations with the physicians but for the fact of their splendid cooperation. With this and the backing of a good board we seem to be getting good results.

A study of the four years, during which the writer has served as health officer, a very satisfactory decrease in communicable diseases has been

The Nurse as Health Agent

FLORENCE A. SIMPSON, R.N., HEALTH AGENT, SOUTH DEERFIELD, MASS.

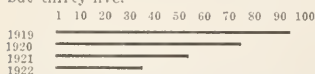
THE caption of this article indicates an interesting change and development in the field of nursing. The responsibilities of the health officer or agent may be among the duties which the public health nurse in a rural community is called upon to assume. In such a case one of the primary problems confronting the nurse will be the control of communicable disease. During recent years there has been a great change in the methods of control applied to these infections. Many nurses received their training when things, rather

than persons were considered the source of infection. After accepting the newer interpretations it then becomes a question as to the extent to which modern methods can be introduced into the community.

It is not strange to find persisting in most country places some fears and superstitions that we have learned to discard. Even the trained nurse was somewhat appalled when the reaction against fumigation began and this practice was pronounced of little value.

Public health work in a new place

shown. For eight months in 1919, we had ninety-eight cases, in 1920, seventy-six; in 1921, fifty-three and in 1922, but thirty-five.



There are other parts of the work not so interesting and satisfactory. Reports of insanitary conditions are investigated, but many times the places in question are more untidy than a real menace to health. Things requiring action are referred to and taken up directly by the board. It is always a source of help to refer problem cases to the state department of public health through the district health officer and with his help a course of action can be decided upon. With this splendid support of the local board, physicians, and the state department of public health, a nurse must welcome the added responsibility of "health officer" in order to demonstrate a wider scope of usefulness to the rural community.

Jersey City Starts Drive Against Home Sweat Shops

Exploitation of children by sweatshop operators is to end in Jersey City, according to announcements from the National Child Labor Committee. On the basis of inquiry instituted in the first instance on suggestion of the Reverend Corrado Riggio, head of the Italian Department of Goodwill Community house, who supplied a list of names for investigation, a study was undertaken by Mrs. Nellie Smith, head of the Bureau of Vocational Education, under the direction of Health Officer Hagen. There have been found 934 children working under home sweatshop conditions, and the report of the health officer carried a picture of such deplorable conditions that action was brought at once against the worst offenders, judgment carrying jail sentence instead of fines. Actions to date have covered 316 children and 273 adults, representing 161 families.

Pennsylvania Reports Fewer Industrial Accidents

According to a statement issued by the Department of Labor and Industry of Pennsylvania, a total of 112,746 inspections were made during 1922 by the Bureau of Inspections, of which number 88,340 were routine inspections according to the block system plan, and 24,406 were special investigations. The number of violations of labor laws for the year

reached an aggregate of 8,817, while 181 prosecutions were instituted.

The Division of Accident inspection shows a total of 1,890 fatal accidents in industrial, public service, and mines, as compared with 1,924 in 1921. Industrial accidents alone, however, not including mine accidents, numbered 732 in 1922 as against 644 in the preceding year, an increase of nearly 14 per cent. Rather a serious lapse in measures of protection against accidents in industry is reported as existing in the industrial work of the boys at Huntington Reformatory and special regulations were made and enforced by the Division of Accident Inspection.

During the three years ending January 1, 1923, 3,023 persons reported as disabled and residing in Pennsylvania have been offered the services of the State Bureau of Rehabilitation, 2,279 have registered with the bureau, and 1,014 have been placed in suitable occupations, many thus placed having been given both school training and training on the job, says the statement. Of the 2,279 persons registered only fifty-three were females.

The character of the disabilities of those registered with the bureau during the last three years is indicated as follows: Hand, 684; hands, 22; arm, 316; arms, 9; leg, 674; legs, 75; hand and arm, 2; hand and leg, 2; arm and leg, 5; multiple, 52; one eye, 43; both eyes, 91; hearing, 5; general disability, 54; and miscellaneous, 245.

Gases Liberated by High Voltage Insulation

Tests made by the Bureau of Mines at the plant of the Westinghouse High Voltage Insulator Company, Derry, Pa., to determine the cause of more or less frequent complaint of depression and shortness of breath on the part of new employees. The condition is most noticeable after leaving work and getting into fresh air, but the employees soon get accustomed to it and no ill effects are noticed.

The gases liberated were found to be oxides of nitrogen and ozone. The former are liberated in exceedingly small proportions—never greater than 0.2 parts per million—and the danger from these gases can be disregarded in this process as seventy-eight parts can be borne for half an hour, and only 117 to 156 parts are directly dangerous.

For ozone the maximum concentration was ten parts per million, and

then only when the samples of air were taken directly over the rack during testing and when the maximum quantity of ozone was being liberated. Samples taken on the windward side showed only two parts per million.

On the physiological effects of ozone the report gives the results of Hill and Aeberly, who found, using a test chamber, that three parts per million in normal air caused smarting of the eyes and nose, and finally a coughing spell which caused the subject to leave the chamber after ten minutes exposure. In another test a subject was able to remain for twelve minutes in the testing chamber when it contained from three to six parts per million. Jordan and Carlson found that ten parts per million for a fifteen-minute exposure caused sore throat, and that exposure for two hours to twenty parts may prove fatal.

The results of these tests indicate that no serious problem exists in the process, but continuous ventilation of the room to prevent an undue ozone concentration is recommended. This could be accomplished by placing fans directly under the testing racks to blow the gases away from the workmen. The operation of the fans for one or two minutes immediately after each test should be ample to remove the gases entirely.

New York State Laboratories

The annual report of the Division of Laboratories and Research, New York State Department of Health, for the year 1922, shows a great increase in the number of examinations of specimens. Examinations at the Albany laboratory increased 15 per cent and examinations at the New York City branch laboratory 40 per cent.

A decrease in the demand for diphtheria antitoxin has been more than offset by the increased call for Schick test outfits and for toxin-antitoxin mixture. The increase in Schick test outfits was 149 per cent, and the contained material was sufficient for 81,000 tests. The distribution of toxin-antitoxin mixture was 252 per cent greater than in the previous year.

The number of approved laboratories in the state has increased from seventy to more than 100, taxing to the utmost the ability of the staff to test the operation of each.

A new hospital and cottage building for the Kentucky Children's Home, Lyndon, Ky., is to be erected at a cost of about half a million dollars.

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Corpus Luteum, true substance.

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Suprarenal Cortex — powder and tablets, free from active principle.

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State Subsidies for County Sanatoriums

(Continued from page 880)

TABLE 1.—STATES AUTHORIZING COUNTY SANATORIUMS GRANTING A SUBSIDY.

State	Two or More Counties May Join	Date	Amount Paid	How Paid	State Supervision	State Approval	Number Operating
Missouri	No	1915	\$7.50	Indigent patients	None	None	1
Wisconsin	Yes	1911	7.00	Indigent patients committed by County Court	Nominal by Board of Control	Board of Control	14+2
New Jersey	—	1912	6.00	For cases paying less than full maintenance	Casual by Board of Health	Board of Health Site State Architects plans	11
Washington	No	1913	5.00	For cases paying less than full maintenance	State Board of Health	State Board of Health	4
Massachusetts	No	1911	5.00	Indigent with + sputum	State Board of Health	State Board of Health	6
Minnesota	Yes	1913	5.00	Free cases	Advisory Com. Minn. San. for Consumptives	Advisory Com. Minn. San. for Consumptives	14+1
Michigan	Yes	1917	One half total sanatorium maintenance cost not exceeding \$3,000.00 from State annually	Indigents one yr. residence	Nominal by State Board of Health	State Board of Health	14+3
California	Yes	1915	\$3.00	Indigents one yr. residence	Board of Health	Board of Health	16

TABLE 2.—STATES AUTHORIZING COUNTY SANATORIUMS BUT NOT GRANTING A SUBSIDY.

State	Two or More Counties May Join	Law Passed	State Supervision	State Approval Plans and Site	Number Operating	Number Authorized
Virginia	Yes	1913	None	None	None	None
Iowa	No	1905	None	None	None	None
Pennsylvania	Yes, but no law to that effect	1921	Health Commissioner may inspect	State Health Commission	2	6
Oklahoma	No	1919	None	None	1	None
Indiana	Yes	1913	Casual, Board of Health	None	4	None
Ohio	Yes	1903	Board of Charities	Board of Health	8	4
New York	Yes	1909	Annually, Board of Health	Board of Health	27 + 7 institutions operating as Co. Sanatoria	None
Connecticut	—	1911	Board of Health	Board of Health	None	None
Maryland	No	No special law	None	None	None	None
Texas	Yes	1913	None	None	None	None
Georgia	No	1916	None	If requested of State Bd. of Health	10	None
Kentucky	Yes	1913	State Board of Health	None	None	None
Illinois	Yes	1915	Annual, Board of Health	State Board of Health	6	None
North Carolina	No	1917	None	Board of Health	13	2
Alabama	Yes	1915	State T. B. Commission	State Tuberculosis Commission	1	None
Tennessee	Yes	1917	State Board of Health has right of inspection	None	None	None
Florida	No	1917	None	State Health Officer	4	None

is high at present." On page No. 66 of the "special report" of the department and from the tabulation giving county sanatorium maintenance costs we find the per capita per day to range from \$6.69 in a seventy-one bed sanatorium to \$2.44 per day in a fifty-bed sanatorium, giving an average for the six county institutions of \$4.925 per day.

In this connection it is interesting to note that the lowest per capita cost is not in the largest institution but in the smallest sanatorium of this group.

With proper standardization of physical features and of sanatorium management, there appears no good reason why the per capita cost per day should exceed three dollars, in fact, in our state the average for 1921 (which is the year covered by the Massachusetts data) was \$2.976 per capita per day.

That a large sum of money may be saved by state supervision over construction may be shown by a comparison of such costs in Minnesota and in Massachusetts. In the latter in-

stance, the six county sanatoriums vary in cost per bed from \$8,998.86 to \$1,562.25 with an average of \$4,805.55, this including the cost of site and equipment. In Minnesota, the average is approximately four thousand dollars per bed.

It is, however, the standardization of management which is made possible by state supervision which speaks the loudest in favor of its presence in state laws.

In our own state the law-makers fully intended supervision on the part of the state to be exerted as they specified that funds from the state

treasurer only became available for construction when the approval and consent of the Advisory Commission of the Minnesota Sanatorium for Consumptives⁵ had been obtained and further funds to assist in the management when "the president and executive secretary of the Advisory Commission certify that the institution has been properly conducted."

As a result of these features of our laws, sites have been selected not remote and inaccessible, buildings have been erected fireproof and well-planned. Medical service has been secured on a full time basis and by competent, well-trained men. The business and medical records have been standardized, and the environment produced for the welfare of the patient, has, we believe, attained to a degree of perfection unequalled in any state system of county sanatoriums.

This has been made possible of achievement by producing a special tuberculosis board to serve the state, a board of five physicians, broadminded, interested, and through training and experience capable of affording the state valuable service.

From our experience of exactly—(Continued on page 936)



Ward in Riverside Sanatorium, Granite Falls, Minn.

5. Section 2, Chapter 500, General Laws of Minnesota, 1913.
6. Section 4, Chapter 500, General Laws of Minnesota, 1913.



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Colds	Lumbago
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Vaseline

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PETROLEUM JELLY



Every "Vaseline" Product is recommended everywhere because of its absolute purity and effectiveness

Immunization by Ingestion

(Continued from page 876)

able to secure protection by subcutaneous vaccination on account of various contraindications the ingestion of bile and vaccine by these same individuals was accomplished without difficulty.

So much for the harmlessness of oral vaccination. So far as its efficacy is concerned there has not yet been sufficient time to formulate an absolutely definitive opinion. Considerable groups of people both in the civil and the military population have been vaccinated by the oral route during the course of epidemics and so far the results obtained appear to be favorable. As illustrations we may cite two epidemics of typhoid fever, one observed in the civil population in the north of France, the other in a large military school in the department of Sarthe.

The first of these outbreaks took place in 1921 in one of the devastated regions of the Pas-de-Calais. It was made the subject of a detailed report by the department inspector of hygiene, Monsieur Vaillant. The results in brief were as follows: 1,236 inhabitants were vaccinated by the oral method and 173 subcutaneously, while 600 and 650 persons remained unvaccinated. The last group of the non-vaccinated were severely tested. Twenty-nine of them contracted typhoid before the vaccinations began, twenty-one more acquired the disease after the other vaccinations commenced giving a morbidity of 7.7 per cent. Out of the 173 persons vaccinated by the subcutaneous method with the ordinary typhoid and para-typhoid triple vaccine, four were taken sick between the fifth and the twelfth day after infection (2.3 per cent). Out of 1,236 persons to whom bile vaccine was administered by mouth, five were taken sick in the days succeeding vaccination, 0.17 per cent.

The second epidemic to which we have referred above broke out in April, 1923, at the military pritanium at la Flèche, and was reported upon by the Chief Medical Officer of that establishment, Monsieur Megnin. During the six days which passed between the diagnosis of the first case and the beginning of vaccination, forty-three cases were recorded. The pupils who had remained well up to this time were divided into two groups, the more robust were vaccinated by the subcutaneous method, the undernourished and those who

presented various contraindications were vaccinated by the oral route. As was to have been expected the epidemic did not stop at once after the vaccinations and new cases of typhoid although of a mild variety occurred in both groups. It is probable that these subjects were in the incubation stage at the time of their vaccination. The definite results two months after the close of the epidemic were as follows: among the most vigorous pupils, 253 in number who had received the triple vaccine subcutaneously, 10 were taken sick in the twenty days following vaccination. Out of the 268 less robust students who received the bile vaccine by the oral method, 5 were taken sick within eleven days after vaccination.

From a consideration of all these facts we may conclude that the injection of bile vaccines is free from harmful effects even in those subjects who offer contraindications in regard to subcutaneous vaccination, and that oral vaccination is at least as efficacious if not more efficacious than that accomplished by the subcutaneous method.

Occupational Training for Deaf Mutes

The Berlin correspondent of the American Medical Association reports at some length on studies recently made by Principal Neuert of Heidelberg on the training of deaf-mutes and their choice of vocation. By far the greater proportion of deaf-mutes take up some handicraft. The males are in the main shoemakers, tailors, carpenters, goldsmiths, glass painters, book binders, saddlers, and paper hangers. Women for the most part make their living at sewing. About 25 per cent of deaf-mutes are employed at agriculture or gardening.

About 25 per cent of deaf-mutes are married, and of those married only 40 per cent are self-supporting. It is held that all deaf-mutes, irrespective of economic condition, should receive further industrial training after dismissal from special schools, and that occupational training should not be continued in an institution but should give practical training in actual jobs.

The American Chemical Society will hold its sixty-seventh annual meeting in Washington, D. C., April 21 to 25, 1924.

Sickness and Old Age Insurance for the Ministry

A movement to safeguard the ministry of Congregational churches that has been inaugurated by the National Council of Congregational Churches under a pension plan devised by skillful actuaries will provide for the entire ministry. A foundation fund of eight million dollars will provide annuity funds during periods of disability or old age. Annual dues equivalent to 6 per cent are assessed on salaries, a burden which is relieved by the assumption of part of the burden by the individual churches, or by benefits under a special fund for this purpose for men on the smaller salaries.

Hydrogen Sulphur Gas an Industrial Poison

The conclusions of Bureau of Mines investigators in the basis of experimentation with hydrogen sulphid are that this gas constitutes an industrial poison, the toxicity of which has not been fully realized. Cases of poisoning have occurred in relatively large numbers and constant vigilance is required to prevent accidents.

Acute poisoning can be produced by low concentrations of this gas, and may result in respiratory paralysis followed by heart failure and death.

Hydrogen sulphid is sometimes present in mines, railroad tunnels, and marshes. It is found in various stages of the manufacture of sulphuric acid, in the distillation of petroleum, and also about some gas wells, gas plants, and smelters.

Society of Industrial Engineers Elect

At the annual meeting of the Board of Directors of the Society of Industrial Engineers, held in November, W. G. Sheehan, of Crystal Corporation, Detroit, was elected president; Edward T. Miller, of the United Typothetae of America, treasurer; and George C. Dent, Chicago, was re-elected executive secretary. The following men were elected to existing vacancies on the board: W. W. Nichols, mechanical engineer, D. P. Brown & Co., Detroit; Frederick E. Rein, consulting industrial engineer, Philadelphia; and John F. Putnam, comptroller, Holeproof Hosiery Company, Milwaukee.

The eleventh S. I. E. convention will be held at Buffalo, N. Y., April 30, May 1 and 2.

The Management of an Infant's Diet

Malnutrition, Marasmus, Infantile Atrophy, Athrepsia

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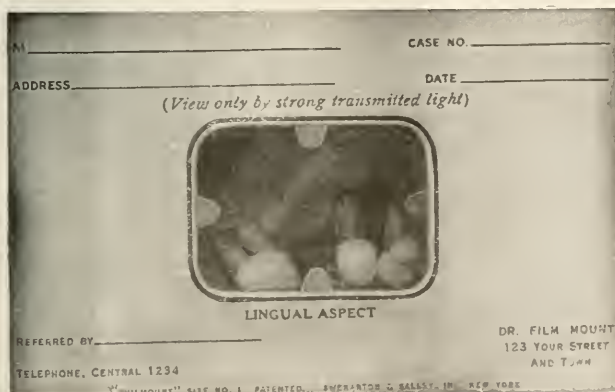
8 level tablespoonfuls
9 fluidounces
15 fluidounces

This mixture contains 56.61 grams of carbohydrates, thus supplying material that is utilized rapidly for heat and energy. The predominating carbohydrate is MALTOSE, which has the highest point of assimilation of any of the sugars, is immediately available as fuel and may be safely given in comparatively large amounts. The daily intake of protein from the employment of this formula is 15.54 grams, an amount calculated to be sufficient to replace depleted tissues and to provide for new growth. There is present in the mixture 4.32 grams of salts for replenishing inorganic elements.

The suggested modification furnishes nutrition in keeping with the character and amount of food elements best adapted to the particular demands of infants in an extreme state of emaciation and serves well as a starting point in attempting to meet the nutritive requirements of these undernourished babies.

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Central Purchasing for City and County

On May 17 there went into effect in San Francisco, Calif., an ordinance providing for an organization of Bureau of Supplies, which department, under the direction of a purchaser of supplies, will take care of needs of every kind of the several departments of the City Government except the Public Library.

The Purchaser of Supplies is given the authority to sign contracts for supplies for future delivery and payment, not exceeding one thousand dollars. Any contract calling for an expenditure in excess of this amount must be entered into jointly with the head of the department submitting the requisition.

The ordinance requires that all purchases made in the open market, except of patented or proprietary articles, fresh fruits and vegetables, and purchases of minor amounts, shall be based on at least three quotations. A record of these quotations and a register of all informal awards will be kept by the Bureau of Supplies.

Authority is given to the purchaser of supplies to prescribe tests for the determination of the quality of all proposed purchases or deliveries, when such quality can be accurately determined by tests. The laboratory facilities of the city, and the services of the technical staff connected with that department, are to be placed at the disposal of the Bureau of Supplies for making whatever tests are required.

The demand for training in citizen military training camps exceeded all previous years, enrollment for the summer having reached a total of 34,500 persons. The demand was smallest in the First Corps area, which is made up of the New England States.

The next annual meeting of the American Academy of Applied Dental Science will be held in Cincinnati, Ohio, January 7-9, 1924.

Memorial Number of Health News

Health News, the monthly bulletin of the New York State Department of Health for July is devoted to a series of eloquent tributes to the late Dr. H. M. Biggs by a score of the leading public health workers of the country with whom Dr. Biggs was associated in the course of his professional career.

Seek Uniform Hospital Building Code

A uniform building code for hospitals is in a fair way of being developed at the instigation of Asa S. Bacon, president of the American Hospital Association. Committee report on the investigations of hospital building codes now under way will be made by Charles H. Owsley, architect of Youngstown, O., chairman.

The National Tuberculosis Association has issued a directory listing 662 sanatoriums, hospitals, day camps, and preventorium for the treatment of tuberculosis in the United States, together with a list of government hospitals which care for the tuberculous.

Appropriation of \$15,000 for the Division of Child Hygiene assures the continuance of the present program in Minnesota under the provisions of the Sheppard-Towner law for another two years.

The plans for a nation-wide campaign for periodic health examinations are well under way in Ohio. Dr. John E. Monger, state director of health, is chairman of the Ohio committee. Organization of a local health committee is to be effected in each health district to be made up of representative civic and welfare groups, and a health week, to be designated for some time in November, is to initiate the campaign.

A survey of community health and hospitals in San Francisco is to be made at once by Dr. Haven Emerson under the auspices of the community chest and the Council of Social and Health Agencies.

Welfare in Mining Communities

The problems of housing, health and welfare work, and mining community activities generally, are to be dealt with on a national scale in the soft coal industry through the recent establishment of a department of the National Coal Association to specialize in maintaining high living standards in mining towns.

Since coal is often mined in remote places, housing and community activities in general devolve upon the employers. It is estimated that investments in miners' houses, company stores, and welfare building, including churches, moving picture theatres, gymnasiums, and similar institutions, approximate 50 per cent of a company's investment in a coal mining community.

Vital Statistics of New Zealand

The report of the Director General of Health of New Zealand for the year ending March 31, 1923 will be studied by sanitarians with keen interest in view of the remarkable results which have been achieved in that country. The crude death rate of 8.77 per 1,000 is influenced to a considerable extent by the age composition of the population, since it is increased by standardization on the basis of the international index of mortality to 10.70. The infant mortality rate of 41.9 represents, however, a remarkable achievement as does the diphtheria rate of 6.2 per 100,000 and the tuberculosis rate of 74.8. Typhoid fever went up to 5.4 as a result of a water epidemic at Mount Albert which was responsible for 30 deaths.

Pirquet Returns to Vienna

De. Clemens F. Pirquet, who came to the United States to head the department of pediatrics at the University of Minnesota, resigned and returned to Vienna after serving at his new post for a period of only two weeks.

The proprietors of agricultural lands are required by a new resolution of the Ministry of Promotion of Peru to construct houses for their workmen as a preventive against bubonic plague. Foundations and floors are to be of stone or concrete construction, rat proof. Adequate sunlight and ventilation are provided and plans are to include running water, drainage, and proper sanitary arrangements.

An International Legion for Child Welfare has been established in Brazil under the auspices of the Brazilian Women's Legion. A center of child welfare is soon to be established.

Occupational work formerly conducted at Columbia Hospital, Milwaukee, has expanded to an extent that has required its removal to a separate building on Van Buren Street where it will operate as a center where physicians in private practice, in industry, or in insurance work may send patients for reeducation and rehabilitation.

The publications sponsored by the Harrower Laboratory, Glendale, Cal., beginning with October issue, have been consolidated into one monthly, *The Endocrine Survey*.

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Medical Inspection of Schools

(Continued from page 866)

a child should never be advised of the presence of a non-remediable defect but in the instance of the usual run of defects there appears to be no surer way of securing the child's cooperation than through explaining simply and plainly the whys and wherefores of correction.

For the purpose of the present discussion we are considering the child as a substitute factor in securing physical improvements but under no circumstances could I consider the follow-up system complete which failed to utilize the child's natural interest in himself.

(3) *The Community Physicians.*—The fact must not be lost sight of that no program of school medical inspection and correction of defects will succeed unless it bears the endorsement and enjoys the active co-operative support of the physicians serving the community. I believe that the local physician deserves the loyalty given him by his clientele and it is very certain that more than one excellent public health endeavor has failed because the players did not direct the game through the physicians to the people.

Before concluding the author wishes to sound one admonitory note. The full beneficial effects of school medical inspection, no matter how efficiently administered, will never be realized so long as children are permitted, or rather compelled, to attend school in overcrowded, ill ventilated, poorly lighted and otherwise

insanitary buildings. The director of physical education in a neighboring state tersely summed up the situation in saying that a proper system of school health supervision consisted of making children fit to go to school and schools fit for children to go to.

There is little of the original in this plan suggesting the use of the classroom teacher as the medium for preliminary screening. It is essential, however, that the practical limitations affecting the use of teachers be recognized and that no unreasonable or distorted demands be made. In any school medical inspection program, no matter how simplified, there will be need for physicians and nurses as well as for sympathetic and competent teachers. This plan is neither applicable to nor desirable for children attending city schools. My plea is for the other half of the child population of school age whose existence under rural or semi-urban conditions is after all more often determined by individual resistance than by the operation of an artificially created sanitary atmosphere such as that enjoyed by the average city dweller. Looked at from the standpoint of national welfare, one of the most important things for this country to do is to make life under rural circumstances as wholesome and safe as possible. Anything done to "keep 'em down on the farm" will return large dividends for unless this can be done the great cities of which we boast will fade as all things fade which lack a proper foundation.

County Sanatoriums

(Continued from page 930)

ten years in the Minnesota work we are convinced of the following:

(1) A state subsidy greatly stimulates counties to establish tuberculosis sanatoriums.

(2) A state subsidy granted upon approval of an authorized state board may be used to insure high type of sanatorium construction and management.

(3) A state subsidy may well be granted even when facilities for hospitalization of the tuberculous are sufficient because of beneficial influence upon the type of management.

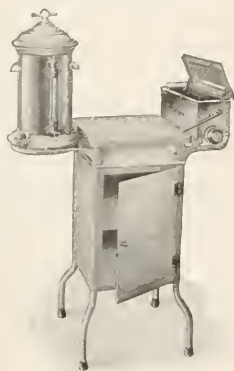
(4) The amount of a state sub-

sidy should approximate one-half the cost of the care of a free case.

(5) A state subsidy should be paid only after approval of construction and management has been rendered by a state board or commission composed of men especially interested and experienced in matters relating to the care, treatment and hospitalization of the tuberculous.

The city of Vera Cruz has set aside fifteen blocks of land whereon workers may erect houses. The privilege is restricted to members of labor unions.

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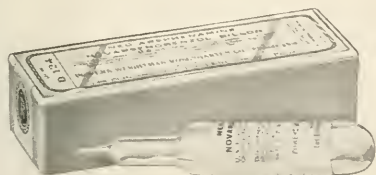
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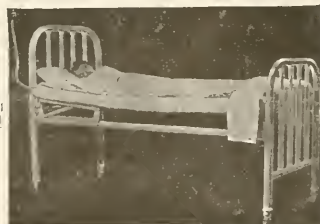
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Monetary Value of Preventive Medicine

The annual report of the Metropolitan Asylums Board presents an eloquent argument for the economic aspects of preventive medicine. It holds that sanitary and hygienic considerations would have made unnecessary a large proportion of the sum of \$11,756,840 paid out in the past year in the treatment of fevers, smallpox, mental deficiency, and tuberculosis. Fevers and smallpox, accounting for more than half of this outlay, might well have been prevented, states the report. Smallpox is especially burdensome for the reason that vaccination has of late years fallen into disrepute and "conscientious objectors" can claim exemption for themselves and families.

Birth, Death, Marriage and Divorce Rates Decline in France

There have been fewer marriages, fewer deaths, fewer divorces and fewer births in France this year than last. Of all figures those for divorce show the greatest relative decline. Where in 1922 the number of couples seeking separation was 14,300, this year the figures are under 12,000.

The number of marriages was reduced by 17,000, deaths by more than 35,000, and births by 800. In the Department of the Seine, which embraces Paris, there were 2,200 more births than last year. If the death rate stays down during the whole year France may be able for the first year in many to show a fair increase in population.

Insulin Cheap Enough for All

Owing to the unselfish attitude of the discoverers of insulin in refusing all compensation for the manufacture of the product, the drug will not be subject to exploitation, but is even now in production to meet the needs of the poorest sufferers and is available at the low cost of three cents a unit. Between 25,000 and 30,000 diabetic patients are now under insulin treatment and reports of clinical success are in from all parts of the world.

A recent Ohio survey of the distribution of medical service throughout the state brought out the fact that 75 per cent of all recent medical graduates are residents of the seven large cities in the state, and that in fifty-eight counties there is a marked decline in the number of physicians for the biennium closing December 31, 1922.

Study of Child Convalescent Management

There will be published soon a study of child convalescent procedure based upon the twelve years' records of Campbell Cottages, the convalescent branch of the New York Hospital, made by Miss Hortense Kahn of Johns Hopkins University under the direction of the Sturgis Research Fund of Johns Hopkins University.

Two Hundred Million Dollars to American Charity

According to figures compiled from statistics of 129 cities by the National Information Bureau more than two hundred million dollars are devoted every year to American charity. The effort to distribute the outlay of this enormous sum brought out very clearly undesirable duplication of activities, lax management, and other factors which make for inefficiency. It emphasized still more that the public is often exploited by professional promoters who know exactly what appeal is best calculated to evoke response at the given moment. Plea is made for business-like management on the part of social agencies as well as for the limitation of public contributions to such organizations as maintain high standards.

Enlarged Field for Institute for Crippled and Disabled Men

The Institute for Crippled and Disabled men is about to embark upon a national program to promote the training and physical and mental rehabilitation of crippled persons, particularly those disabled in industrial accidents. Dr. J. C. Faries is the medical director of the institute. R. C. Branion, recently appointed national secretary, will direct the expanded program.

A course of fifteen lectures on the mental health of children is being given in Boston University School of Education by eminent experts on child health under the direction of J. Mace Andress, head of the department of psychology and child study, Boston Normal School, and with the cooperation of the Massachusetts Society for Mental Hygiene. The course will handle in a manner useful to teachers, mothers, ministers, and social workers such topics as intelligence testing, salvaging the feeble-minded, vocational guidance, the wayward child, nervousness in the light of modern psychology, and the mental health of normal children.



The Psychology of Convalescence

It is the opinion of many prominent physicians and hospital administrators that convalescing patients should leave the hospital as soon as possible, and receive the benefits of a few weeks at a health resort, before resuming commercial, professional, or social duties. The psychological benefit of this procedure is of enormous advantage to the patient.

The HOMESTEAD, Hot Springs, Va., offers an ideal service to convalescing patients who are in need of post-hospital treatment and "conditioning." At these Springs patients can receive all the medical attention that may be required. Here are provided all approved forms of Hydrotherapy, Radium Emanatorium, Inhalatorium, Solarium, Zander Institute, Diet Kitchen—in fact, every facility for recuperation that is to be found in the best of European Spas. The Calcic Carbonate, Magnesia Carbonate, and Sulphate Springs located here are all radioactive. The springs emanate from the ground at a temperature of 106 degrees.

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Insulin and Coffee

IN an authoritative article on the new diabetic remedy, *Insulin*, one of the procedures given to follow in diabetic coma calls for the administration of fluids, mentioning specifically "*hot, clear Coffee.*"

If there was any possibility that Coffee would prove a deterrent factor in the success of the Insulin treatment, it is unlikely that its retention in the dietary of these cases would be sanctioned, much less recommended.

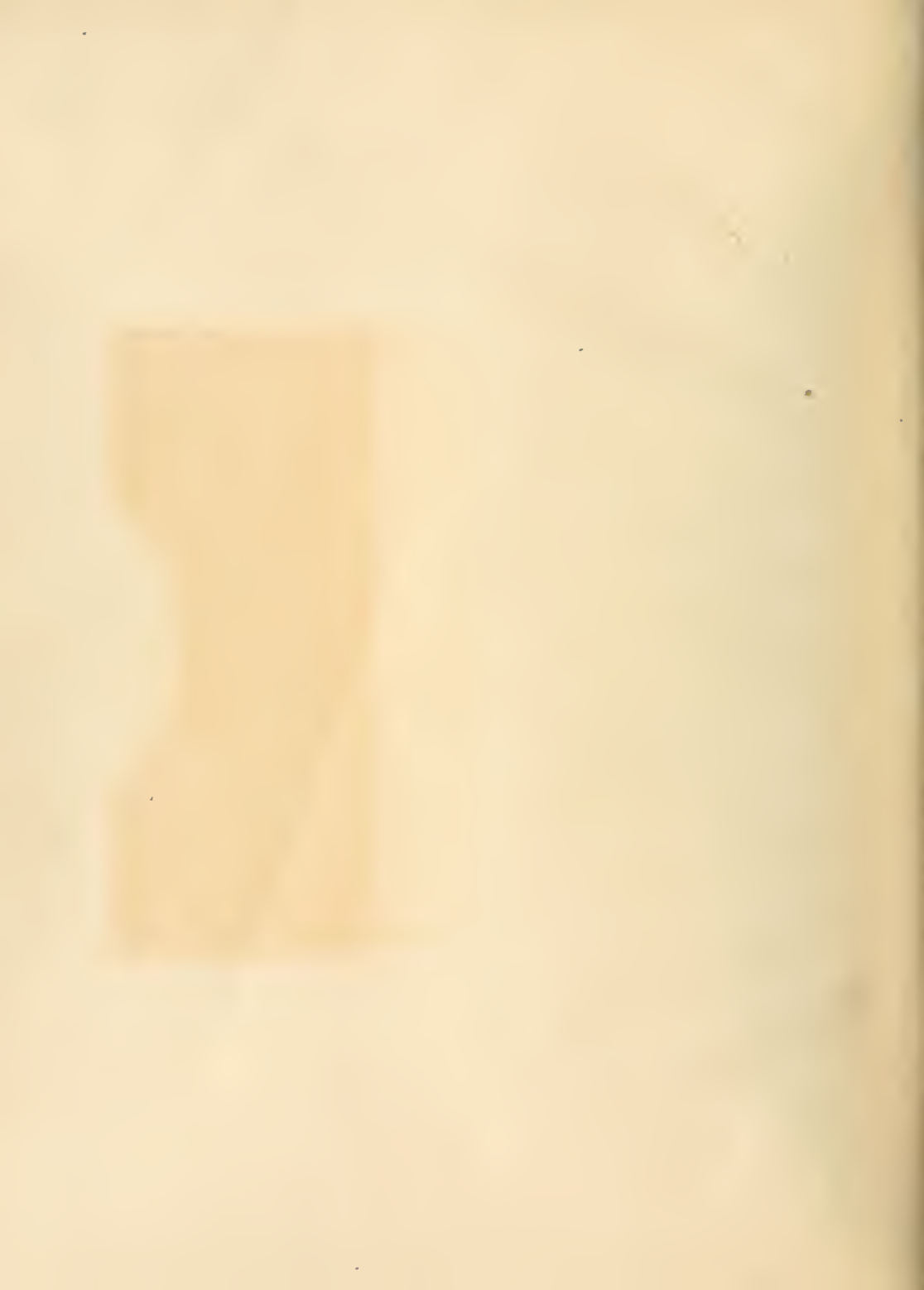
Nowadays, the best case management is that which attains desired results with the least disturbance of the patient's normal

dietary and mode of living. Isn't it true that if you rule Coffee from the dietary of the patient, you may be taking away a beverage of normal diet that may have definite therapeutic value in the case?

Coffee is a mild but effective cardiac stimulant; it is an undoubted aid to sluggish peristalsis; it is a sure antidote for certain poisons, and there is no greater appetite excitant than its rich aroma.

Why not, then, take full advantage of Coffee as a therapeutic agent, and in all fairness, rule it out only in those few cases where clinical findings indicate such action?





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